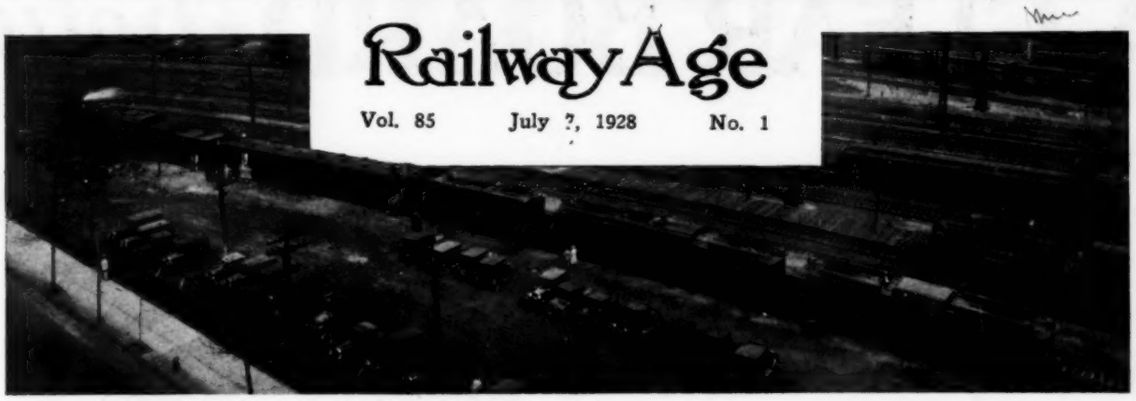
Transportation
Library
TF
1
R13

Railway Age

Vol. 85 July 7, 1928 No. 1



Track Exhibit at N. Y., N. H. & H. Yards, New Haven, Conn., at Recent A. I. E. E. Meeting

TRANSPORTATION LIBRARY
UNIVERSITY OF MICHIGAN

Contents

Modern Yards Complete Solution of B. & M. Terminal Problem Page 5

An article describing new units at Boston which unify road's facilities for classifying cars, speed operation and effect large savings.

Handling Perishables Speedily 11

Careful scheduling and attention to detail enables Florida East Coast to cut time to Markets.

Milwaukee Tests Diesel Rail Car 17

A description of the first car to be driven by American-built Foos Engine—Electric transmission used.

EDITORIALS:

Acquainting Employees With Per Diem 1
Increased Safety in the South 1
Something to Roll 'Em On 1
Improved Turntables 1
Purchased Power from an Executive's Viewpoint 2
Joint Yards 2
Perishable Freight 2
Should Impact Recorders Detect or Protect 3
Why Not Standardize Highway Crossing Signals? 3
The Public Wants Good Service—At Less Than Cost 3

GENERAL ARTICLES:

Modern Yards Complete Solution of B. & M. Terminal Problem 5
Handling Perishables Speedily 11
Acquisition by Santa Fe Will Solve Orient Problems 15
Milwaukee Tests Diesel Rail Car 17
Union Pacific Completes Grand Canyon Tourist Lodge 19
Freight Car Loading 20

GENERAL ARTICLES—Continued

Train Speeds and Non-Stop Runs 20
Economies of Car Retarders, By Venable Lane Stern 22
Rock Island Has Good Year 25
A. S. T. M. Holds Annual Convention 27
Hearing on L. F. Loree's Directorships 28
Roads Ask Higher Mail Pay 30
The Young Tank-Car Bottom-Outlet Valve 31
January Accident Investigations 32
Romney, Hythe & Dymchurch Railway 33
Increased Carloading Expected in Third Quarter 34
Northern Pacific Combination Cafe Coaches 34

LOOKING BACKWARD 35
COMMUNICATIONS AND BOOKS 36
ODDS AND ENDS OF RAILROADING 37
NEWS OF THE WEEK 38

Published every Saturday by the Simmons-Boardman Publishing Company, 34 North Crystal Street, East Stroudsburg, Pa., with executive offices at 30 Church Street, New York.

EDWARD A. SIMMONS, *President*
LUCIUS B. SHERMAN, *Vice-Pres.*
HENRY LEE, *Vice-Pres. & Treas.*
SAMUEL O. DUNN, *Vice-Pres.*
FREDERICK H. THOMPSON, *Vice-Pres.*
CECIL R. MILLS, *Vice-Pres.*
ROY V. WRIGHT, *Sec'y.*

CHICAGO: 105 West Adams St.
WASHINGTON: 17th and H Sts., N. W.
CLEVELAND: 6007 Euclid Ave.
SAN FRANCISCO: 215 Market St.

The Railway Age is a member of the Associated Business Papers (A. B. P.) and of the Audit Bureau of Circulations (A. B. C.).

Subscriptions, including 52 regular weekly issues and special daily editions published from time to time in New York, or in places other than New York, payable in advance and postage free: United States, Mexico and Canada, $6.00. Foreign countries, not including daily editions $8.00.

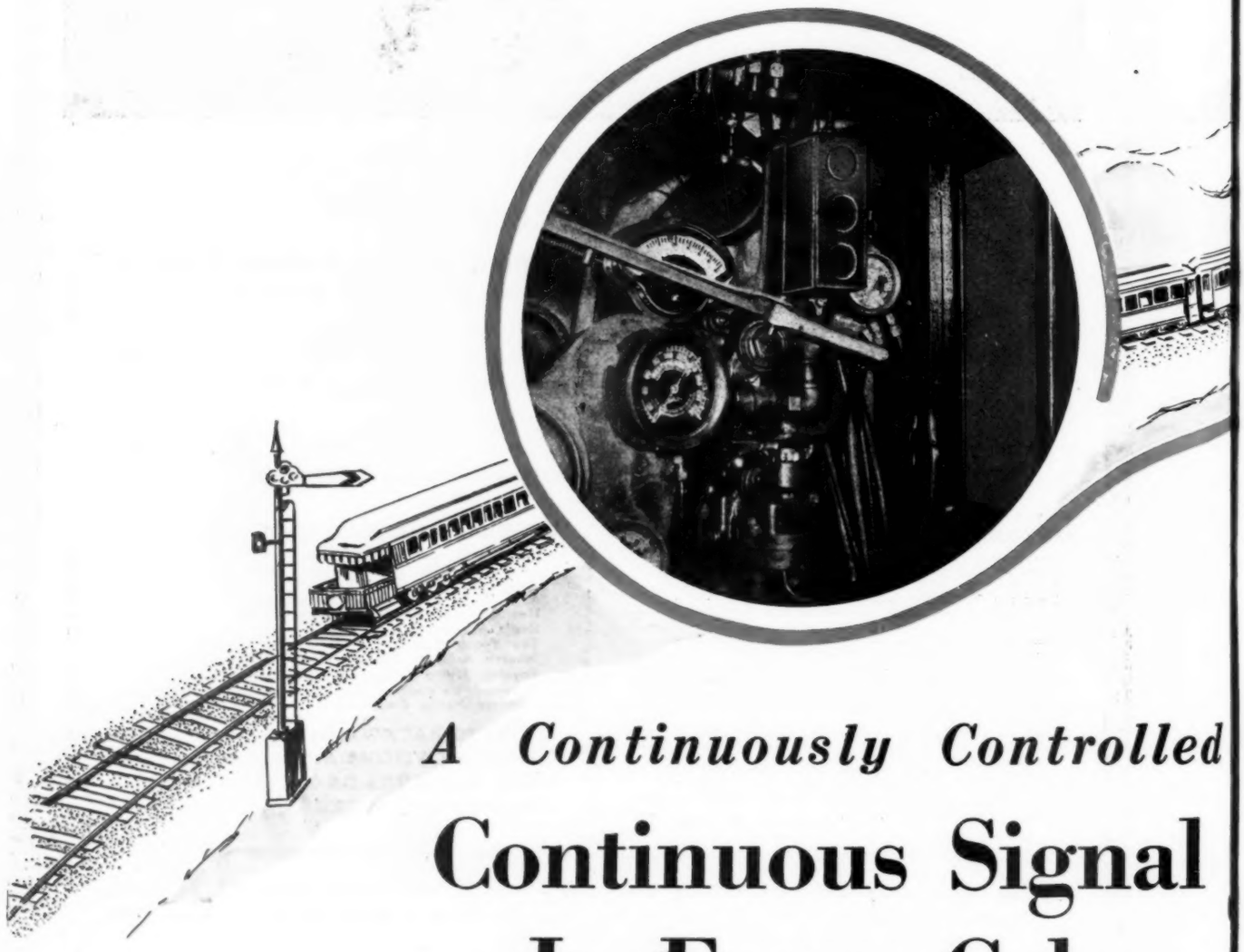
Subscriptions for the fourth issue each month only (published in two sections, the second of which is the Motor Transport Section) payable in advance and postage free: United States, Mexico and Canada, $1.00; foreign countries, $2.00. Single copies, 25 cents each.

Editorial Staff

SAMUEL O. DUNN, *Editor*
ROY V. WRIGHT, *Managing Editor*
ELMER T. HOWSON, *Western Editor*
H. F. LANE, *Washington Editor*

B. B. ADAMS
C. B. PECK
W. S. LACHER
ALFRED G. OEHLER
F. W. KRAEGER
E. L. WOODWARD
J. G. LYNE
J. H. DUNN
D. A. STEEL
R. C. AUGUR
R. A. DOSTER
JOHN C. EMORY
MARION B. RICHARDSON
L. R. GURLEY
H. C. WILCOX
R. S. KENNICK
NEAL D. HOWARD
F. M. PATTERSON
RICHARD W. BECKMAN
LLOYD GEORGE
CHARLES LAYNG
GEORGE E. BOYD
WALTER J. TAFT

A "CLEAR BOARD"-*between*



A Continuously Controlled

Continuous Signal In Every Cab

NOW IN SERVICE OPERATION ON 17 RAILROADS

Railway Age

Vol. 85, No. 1 *July 7, 1928*

Table of Contents Appears on Page 5 of Advertising Section

Acquainting Employees With Per Diem

THE fallacious opinion that all employees know everything there is to know about per diem is rapidly losing ground. Nearly all railroads are now taking steps to impress upon employees the importance of per diem and what it means. The Chicago, Milwaukee, St. Paul & Pacific, among others, uses the company magazine as an aid in promoting per diem education. The general superintendent of transportation is allotted a page in each issue. Under the attention-arresting caption of "Help Wanted," he gives in each issue answers to questions relating to per diem. In addition, current figures are given as to the system per diem standing, and meritorious performances at any individual terminal are mentioned. This page has created much interest among the employees and has brought them to a greater realization of car values.

Increased Safety in the South

THE comparative record of casualties per million man hours in the Southern district, for the first quarter of 1928, may be offered as conclusive evidence of the good work done in that district in promoting safety. The casualty rate per million man hours for this period in this district was 13.03. Each of the 26 railways involved shows a decrease, as compared with 1923. Ten of the roads show decreases of more than 50 per cent, while 12 others show decreases of from 25 to 50 per cent. Among the leaders are the Gulf, Mobile & Northern, 80.5 per cent improvement; the Georgia, 77.5 per cent; the Southern, 72.8 per cent; and the Central of Georgia, 65 per cent. Eighteen of the 27 railways in this region had casualty rates per million man hours under 19.87, which was the average for all railways during 1927. This continues and improves upon the showing made by this district for the last quarter of 1927, when the casualty rate was 14.77, as compared with 18.48 for the Western district and 20.02 for the Eastern district. There have been instances of individual railways making large improvements in safety, but, in this case, the showing is particularly significant, in view of an entire district being involved.

Something to Roll 'Em On

THE credit for the remarkable operating results achieved by the American railways during the last three years, during which time an unprecedented traffic has been handled so efficiently that car shortages have become only a memory, must be apportioned among all of the various departments, which have worked harmoniously to bring about this result, and to the executives who have co-ordinated the departmental activities. One of the outstanding features, which has been of great value in making this result possible, has been the consistent improvement in the track, for there probably has never been a time in the history of our railways when the track was as well fitted to carry heavy traffic at high speeds as it is today. This is due not only to the use of heavier rails, but to the qualities of the other materials which form the track structure and its support, and their incorporation into a well-balanced whole, so that today there are few roads of any consequence subject to the criticism said to have been voiced by a rural observer concerning a road which ran through his farm. This line, whose track was nothing to boast of, has just put into service a number of heavy locomotives and new cars, and a neighbor remarked: "The X.Y. & Z. is gettin' some fine rollin' stock", to which the rural sage retorted: "Yes, but they ain't got nuthin' to roll 'em on."

Improved Turntables

RAILROADS are not often accused of extreme conservatism in their attitude toward new or improved equipment. In fact, the promptness with which they have taken advantage of certain outstanding developments affords conclusive evidence of a progressive approach to the problems of the times. Among the innovations whose merits were quickly recognized is the end-bearing turntable, of which two different types were introduced about the same time. Both have been installed extensively, not only in new engine terminals but also in the replacement of old turntables and it is in the case of the latter that their advantages have been brought out most effectively. The replacement of old turntables is a cumbersome task which must be carried out with expedition to reduce to an absolute minimum the time that the enginehouse is out of service. Before the advent of turntables in which an appreciable proportion of the superimposed load is carried on the end bearings, the installation of a heavier and larger table almost invariably called for the reconstruction of the old center bearing to provide adequately for the heavier load imposed, and frequently, as well, to permit of a lower elevation of the bearing surface to meet the needs of deeper girders. With the new type of equipment, embodying shallower girders and a better distribution of loads, the old center foundation can usually be employed to carry the new turntables with a minimum of alterations, and experience has shown that this results in a marked saving in the time required to carry out that portion of the replacement work which entails an interruption of the roundhouse operations.

Purchased Power From an Executive's Viewpoint

THE question of purchasing power for railway service will probably always be a controversial one, owing to the varying steam and electrical requirements of various railway shops and terminals. In speaking before the annual convention of the National Electric Light Association at Atlantic City this month, L. A. Downs, president of the Illinois Central, made a significant reference to the subject of purchased power. "Aside from equipment," Mr. Downs said, "the most important factor entering into the electrification of the suburban service of the Illinois Central System was the choice of power supply. The practicability of constructing an independent power system, including power plants, transmission lines and substations for the sole use of the railroad was carefully considered, but the decision was against doing so and in favor of purchasing all electrical energy." Mr. Downs then outlined the reasons which led his road to enter into a contract for the purchase of all electric power for suburban electrification. "The erection of an independent power system would have involved a heavy investment on the part of the Illinois Central," he explained, "and the high cost of generation in such a plant by reason of the necessity for a relatively high percentage of reserve generating capacity and on account of the comparatively small peak-load demand, would have made the operation comparatively less economical than the purchase of energy from a large and highly organized power system." Then Mr. Downs pointed out what is perhaps the most important reason for purchasing power, namely; that, "the ownership and operation of such a plant would carry the railroad out of its sphere into the highly specialized field of power production, a field in which it might be difficult for the railroad to keep itself up-to-date. Moreover, uninterrupted service must be maintained. Any breakdown of electrical service in such a terminal would be highly disastrous. The purchase of energy from a large power system having an ample generating reserve and duplicate transmission lines assures the railway of a dependable and uninterrupted supply of energy."

Joint Yards

WHILE the movement of cars through interchange terminals has been materially improved, there is still much to be desired. A committee charged with the investigation of this subject presented a report to the Superintendents' Association, at its recent meeting, recommending that joint yards be established at such points.

Under proper conditions, there can be little doubt that joint yards will result in large savings. However, by reason of expense and other circumstances, it is not feasible, for the present at least, to establish joint yards at all interchange terminals. In lieu, thereof, co-operation between the various roads will aid materially in reducing the time spent by loaded cars in interchange.

Pre-classification is one way in which co-operation will prove valuable. An instance of this is found in the handling of traffic through the Rutherford yard of the Reading, near Harrisburg, Pa. Here, the Reading makes certain pre-classifications for the Pennsylvania, the Baltimore & Ohio and the Western Maryland on westbound traffic. In return, the three roads named pre-classify eastbound cars for the Reading. The net result is that switching and the time through terminals are reduced on all four roads. Similar arrangements are in effect at other points, notably on traffic in and out of the Cedar Hill yard of the New York, New Haven & Hartford at New Haven, Conn., but the practice could be extended with profit to other terminals. At St. Louis, Cincinnati, Chicago, Kansas City and other terminals car movement has also been accelerated by eliminating unnecessary inspection and by reducing transfers.

The operating officers at each large terminal, usually have some sort of a formal or informal committee to consider local problems. These committees should meet more regularly and be given more authority. There is no single factor that slows up car movement through terminals more than mutual distrust among railways. Fortunately, this is not as prevalent as formerly but it should be supplanted universally by co-operation. The local committees provide a means for so co-ordinating the operations of the individual roads that the movement of cars in interchange between roads may approximate that of cars handled through the same terminals by any one road.

Perishable Freight

WITHOUT much fuss and flurry, the railways have been playing an important part in the development of agriculture by their vastly improved handling of perishable freight. This has had the result, in some instances, of transforming deserts into prosperous farming communities, while in cases where these communities were already in existence, it has increased the marketing areas largely, thus stimulating production and promoting prosperity.

This improvement has not been easy of accomplishment. The problems involved in handling perishable freight are extremely complex. The seasonal character of the traffic increases the difficulty of handling it. When a large movement, requiring refrigerator cars, takes place in a few months, or, as in the case of strawberry and early potato shipments, in a few weeks, car supply becomes a vexing question. Various means have been adopted to solve the problem. The volume of the movement is, of course, largely controlled by climatic conditions, and fluctuates from year to year. To meet the situation, the railways originating perishables have evolved systems for estimating the total crop and the number of cars which will be required to handle it. One of several examples of the accuracy with which this is done occurred last year, when the estimate of the strawberry movement from Missouri and Arkansas, amounting to several thousand cars, was within 20 cars of the number actually shipped. These estimates are invaluable, since they enable the railways to know in advance what the car needs will be, permitting steps to be taken in advance of the movement to have the cars on hand.

The supply of refrigerator cars, while large and steadily increasing, is by no means inexhaustible. To meet the demands, some railways have arranged for the interchange of cars, where the shipping season of one perishable commodity occurs at a different time of year than another. For instance, the apple traffic from

Washington moves at a time when the banana shipments through New Orleans are light.

The difficulties do not cease after the perishables are loaded. In fact, they might almost be said to have just begun. To avoid deterioration and the attendant expensive claims, it is imperative that perishables be moved promptly. To accomplish this, transportation officers have displayed remarkable ingenuity in arranging schedules that will insure prompt movement. Increased co-operation between connecting lines as to scheduling has brought about an efficiency in handling that permits the movement of perishables for thousands of miles with such accuracy that, frequently, not a single train misses the market during an entire season.

The detailed operating methods employed in this class of transportation are usually interesting and informative. A representative of the *Railway Age* has studied several of these movements throughout the country. The results of these surveys are set forth in a series of articles, which will appear in the *Railway Age* during the next few months. These articles will include descriptions of the movements; of fruits and vegetables from Florida and of pineapples from Cuba on the Florida East Coast; of apples from Washington on the Northern Pacific; fruits and vegetables from South Texas on the Missouri Pacific, citrus fruit from Florida on the Atlantic Coast Line and strawberries from Missouri and Arkansas on the St. Louis-San Francisco.

Should Impact Recorders Detect or Protect?

UNDER ordinary conditions the impact register is substituted for a watchman to detect rough handling and expose the train crew responsible and is placed in a car without the men associated with the handling of the shipment knowing of its presence. It is commonly believed that with this practice, normal conditions can be exposed and corrected. However, although recording devices have been used for some time and rough handling and damage to equipment and lading have decreased, the full co-operation of the men involved has not been secured. As a result a new theory has been developed. It is that if all persons concerned with the handling of cars are informed of the presence of a recording device greater care will be utilized in the movement. One road which has experimented with this theory, has experienced an improvement in rough handling. Greater co-operation from the men also has been secured since they realize the presence of the device and understand that the instrument is not intended to "show them up" but to afford a record of the movement of cars over all divisions which, in turn, will protect the crews which perform properly if rough handling should occur at some other place enroute.

This road is about to acquire 200 devices for use in all trains leaving the more important shipping points on its lines. The idea has also appealed to several shippers who are advocating the practice of protection, and one shipper experienced such excellent results during the experiments under which the crew is informed of the presence of the impact recorder, that he now insists that the waybills for his shipments bear the notation "Impact Recorder." The conductor who receives these waybills notices the notation and informs the engineman that a "bug" is on board.

Why Not Standardize Highway Crossing Signals?

AT the recent hearing before the Interstate Commerce Commission on the subject of train control and signaling, about half of the evidence presented by the carriers had to do with the problem of highway grade crossing protection, especially bringing out the fact that many people are being killed at grade crossings as compared with the few killed in train accidents which train control is designed to prevent.

The extent to which a carrier is responsible for a highway crossing accident is an open question, depending on local conditions. Nevertheless, the railroads have been forced to provide protective devices, and should be interested in any action that will protect their interests in the future. The human flagman is an expensive form of protection, and at best is often ineffective in stopping heavy automobile traffic. Manually-operated gates, although expensive in operation, are required in certain congested areas. For the vast majority of crossings equipped with automatic protection, the American Railway Association, Signal Section, automatic signals have been used. The joker in this A.R.A., Signal Section standard is that it is "brothers," not enough alike to be considered as twins, for the specification authorizes an aspect: "When indicating the approach of a train, the appearance of a horizontal swinging red light and or disc." In brief, this includes both the alternate flashing-light and the wig-wag types. Of the 2,151 crossings equipped with automatic signals in the United States in 1927, the flashing-light type was installed at 1,409, and the wig-wag at 742 crossings. The wig-wag is the legal requirement in California, and is perhaps given preference in most of the area west of the Mississippi, while in the eastern states the flashing-light type is preferred, although the wig-wag is found in Maine and Virginia as well as in California. In many states the type of signal to be installed at any particular crossing depends on the preference of the railroad or the local city authorities. The results are confusing to an automobile driver out for a Sunday afternoon, to say nothing of the tourist on strange highways.

Why not eliminate the confusion of aspects by adopting *one* standard for the entire United States, to be used for all future installations? As long as one state adopts one type, and another the other, there is no standardization; the confusion is much worse in states like Illinois, in which the advocates of each type are strong enough to prevent a decision on either. As long as two types are recognized, the ultimate in standardization cannot be said to have yet been attained.

The Public Wants Good Service—At Less Than Cost

CAN the industry and people of the United States afford good railway service? This may seem to most of our readers a foolish question which all persons would answer in the affirmative. But by their actual conduct, most persons are answering it in the negative.

The railways at present are rendering the best service in their history. But they are not earning enough permanently to maintain such service. They are failing to

earn enough because a large majority of those who are influential in determining the kind of service they can render are effectively using their influence against the rendering of good service.

Good service cannot be rendered indefinitely by any industry under private ownership unless it makes earnings sufficient to defray the total cost incurred. The total cost includes not only operating expenses and taxes, but an adequate return upon investment. Considering the situation of the railroad industry as a whole, it is now rendering good service for earnings less than the total cost. The proof is that the industry as a whole for more than a year has been earning a return of only a little over four per cent upon its investment. Even during the recent period of low interest rates no industry could raise new capital at that low an average rate, and temporarily, at least, this period of low interest rates is ended.

An important fact of which few persons apparently have taken account is that not only are the influences which, combined, control railway results tending to cause a deterioration of service, but that, combined, the theories advanced by different interests constitute an argument to the effect that the industry and people of the country cannot afford to have good railway service. First, it is contended that railway employees should be paid "reasonable" wages, regardless of the effect on railway net earnings, and almost every arbitration board that has been organized under the Watson-Parker act has granted an advance in wages regardless of net earnings. Secondly, it is contended by those who are seeking reductions of freight rates on farm products that the farmers are entitled to "reasonable" rates, and that the rates on these products are unreasonably high; and, therefore, should be reduced regardless of the effect on the ability of the railways to earn a "fair return". Third, it is contended, in spite of the growth that has occurred in the part of passenger business to which the "surcharge" is applied, that it should be abolished, regardless of the effect on net earnings. Fourth, it is contended that agriculture and industry, especially in the Mississippi Valley territory, need "cheaper" transportation than the railways can afford to render under present conditions, and that, therefore, the government should improve inland waterways, operate barge service on them and divert traffic from the railways, regardless of the effect upon railway net earnings.

In other words, almost every group of influence in the country—labor leaders, farmers, traveling salesmen, business men and politicians—is insisting that something affecting the railways should be done in its behalf, regardless of the effect on railway net earnings. The resultant of these various kinds of pressure may be read in comparative railway statistics for 1916 and 1927. The total earnings of the railways were $2,542,053,000 more in 1927 than in 1916. Their operating expenses and taxes in 1927 were $2,513,131,000 more than in 1916. In other words, the increases in operating expenses and taxes consumed 99 per cent of the increase in total earnings, and left only one per cent of the increase in total earnings to pay increased return upon the investment. The increase in the investment in the railways, meantime, was about $7,250,000,000, or more than 40 per cent. The average return earned upon the total investment in 1916 was 5.9 per cent, and in 1927, 4.3 per cent. And they are now earning less net return than in 1927.

Obviously the good and adequate service now being rendered could not have been provided if this investment had not been made. It is obvious also that a decline in the amount of investment made in railway properties will occur unless there is a substantial increase in the average return earned. As a matter of fact, declines in both investment and in expenditures for the maintenance of railway properties already are occurring. Recent statistics of the Interstate Commerce Commission show that in the first quarter of this year the railways employed only 1,616,352 persons, or 130,509 less than the average number employed in the first quarters of the preceding five years. Although only about 47 per cent of their employees are engaged in maintenance work, about 60 per cent of the total reduction in employees has been in the maintenance department. Furthermore, as was recently pointed out in these columns, the number of old locomotives and cars retired recently has so greatly exceeded the number of new locomotives and cars placed in service that the aggregate power of locomotives and the aggregate capacity of freight cars are now less than 1925.

And this is only part of the story. In spite of the small net return now being earned by the railroad industry, the pressure for advances in wages, reductions of rates and diversion of traffic to other means of transportation is increasing. Neither labor leaders, railway employees, farmers, politicians nor business men seem to give the slightest consideration to the effect the course they have followed in the past already has had upon railway net return, or to the further reduction of it which must be the result of the success of the efforts they are continuing to make to promote, at the expense of the railways, what they assume to be their own selfish interests.

In the long run, the adequacy and quality of the service the railways can and will render will depend upon the net return earned by them. Therefore, this constant pressure for higher wages, lower rates and the diversion of traffic to other means of transportaion is a pressure for the deterioration of railway service. It is a pressure in behalf of the revival of car shortages, slower passenger and freight service and more accidents. It is a pressure to prevent the elimination of grade crossings, the construction of new passenger stations, the electrification of terminals and other improvements which the people of almost every community and territory are demanding of the railways.

Do the American people want good railroads and good railroad service? They say they do, but the course they are following in dealing with the railways directly contradicts this. Actions speak louder than words. In the long run, railway managers will have to be governed by what the public does and not by what it says. Of course, it would be absurd to say that the American people cannot afford to have good railway service. They cannot afford not to have it. The traffic they demand the railways shall handle, and which the railways actually do handle, is ample, if wages, taxes and rates were fixed with intelligence, to provide earnings sufficient not only to maintain present service, but constantly to improve it. But to say, in view of what has occurred in the past and is occurring now, that the public is willing to pay for good service, is to ignore the plain fact that the public constantly demands good service while each group of the public constantly tries to evade paying for it what it is worth and what it costs. The public is getting better service than it is paying for now, but the laws of economics forbid that this condition should continue indefinitely.

Just Below the Hump in the Outbound Yard—Receiving Tracks in the Foreground

Modern Yards Complete Solution of B. & M. Terminal Problem

Fully equipped units at Boston unify road's facilities for classifying cars, speed operation and effect large savings

ON June 5 the Boston & Maine officially placed in operation two modern car-retarder and power-switch equipped classification yards at Boston, Mass., to replace the scattered facilities of the four principal roads which make up that system. The new yards incorporate the most modern features of design, construction and equipment, and have so speeded up car movement that Boston & Maine schedules are from 12 to 48 hours faster than before.

In an article which appeared in the *Railway Age* of May 28, 1927, a description was given of the problems confronting the Boston & Maine at Boston, and also of the new facilities which had been provided up to that time in the program of unifying and modernizing its Boston freight terminals. This work, which cost in the neighborhood of $5,000,000, included principally a new large outbound freight house and warehouse; the enlargement and partial consolidation of the team track facilities; the construction of modern automobile unloading facilities; the re-location of the Southern division passenger main line for a distance of about 7,500 ft. to eliminate interference between freight and passenger movements; the construction of a modern fruit and vegetable auction terminal; the filling of several acres of pile trestles, and the construction of two large classification yards.

The construction of the two new classification yards, costing approximately $3,000,000, is of interest not only because of the modern principles of design, equipment and operation involved, but also because of the special engineering problems encountered in the unification of the work formerly handled in congested and widely scattered facilities. These new gravity classification yards, which occupy the site of two former flat switching yards, are fully equipped to speed up the movement of cars into and out of the Boston metropolitan district, as well as to reduce the cost of handling the Boston & Maine's through freight traffic.

No Co-ordination Existed Between Old Facilities

Until the completion of the new terminal facilities, the Boston & Maine's Boston terminal consisted of the facilities of the four principal roads which comprise the present railroad—the old Boston & Maine, the Boston & Lowell, the Fitchburg, and the Eastern railroads. While consolidated in name, there was little consolidation in fact. In the 470 acres devoted to intensive railroad development, a large part of which is "made" ground lying just across the Charles river in Cambridge, Somerville and Charlestown, each of the four constituent roads maintained its own l.c.l. freight facilities, engine terminals and classification yards. These different units, some of which were on pile trestles, were separated from each other by the Miller and Charles rivers and by the passenger main lines, conditions which made economical and expedious unified operation an impossibility. One of the greatest operating difficulties encountered was that of interchanging freight from one division to another, involving as it did two or more yard handlings in one terminal, separated by main line passenger tracks over which approximately 365 passenger trains are handled daily and, in some cases, the use of the main lines for long distances to get across one of the rivers.

Owing to the lack of funds, little could be done to relieve this situation until recent years when, under a comprehensive plan developed by George Hannauer, then vice-president of the Indiana Harbor Belt and now president of the Boston & Maine, and John F. Stephens, consulting engineer, the present unified terminal was decided upon. Under this plan the carload and l.c.l. freight facilities of the various divisions have been

largely consolidated in East Cambridge as described in the May 28, 1927, issue of the *Railway Age*, while the functions of eight switching yards have been consolidated into the two new classification yards in Somerville immediately north of the East Cambridge terminal.

Careful Study Was Given to Yard Location

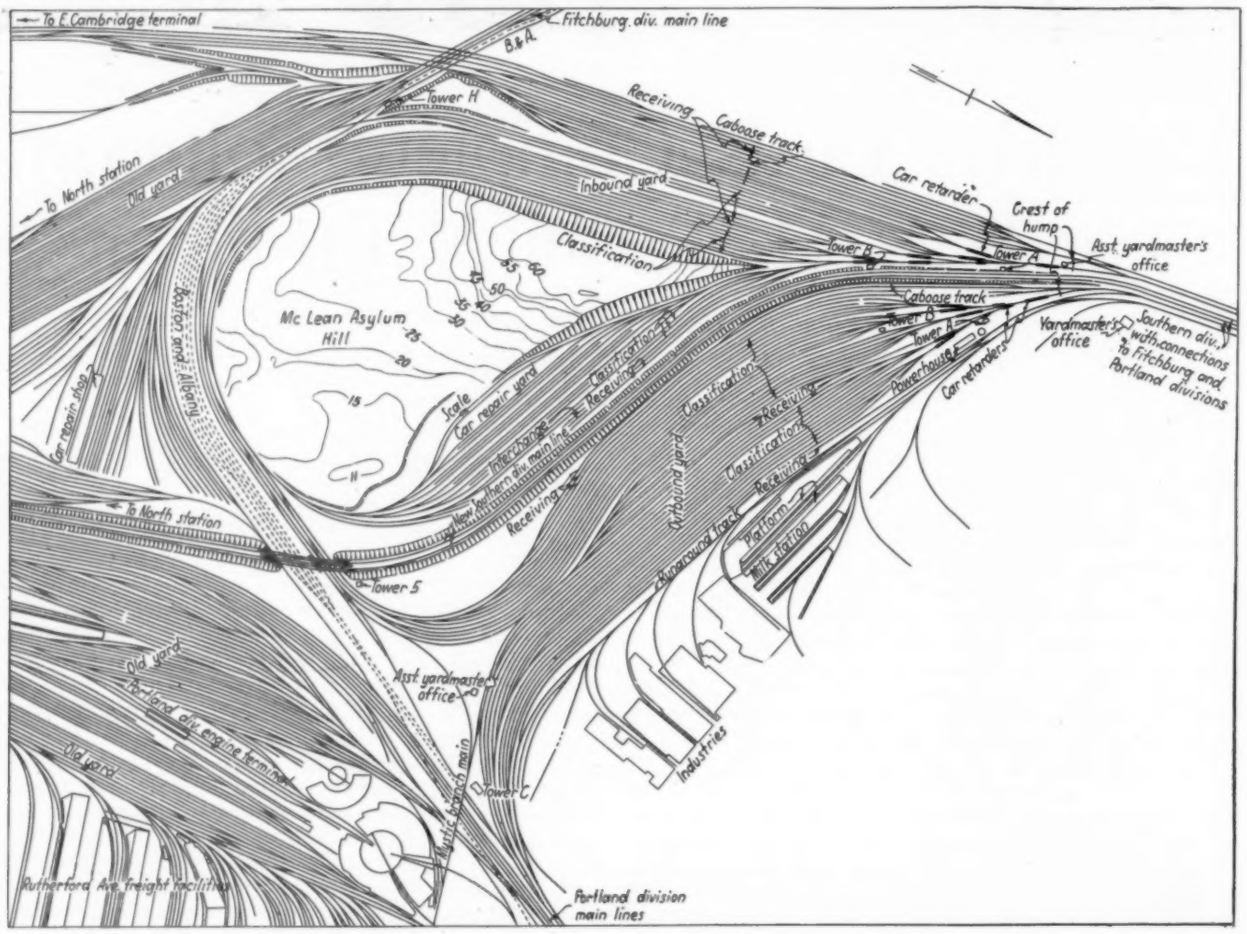
Owing to the limited area available for development and to topographical conditions on the one hand, and to the extensive territory served on the other hand, consideration was given to locating the yards on a belt about 20 miles outside of Boston, where in addition to serving the metropolitan district, they would also serve other cities, including Lowell, Lawrence and Salem, Mass. This would have greatly minimized the problems of design and construction, and would have permitted more economical operation at the outside cities, but on the other hand, it would have entailed larger expense in operation and less speed in the handling of cars into and out of the large Boston metropolitan district which serves about 2,000,000 people. In view of this, it was decided to locate the new classification yards in Somerville, using as part of the site, the area occupied by two of the former flat switching yards, and thereby making it possible for road trains to bring their cars directly into the industrial section of Boston.

As will be noted on the plan of the new yard facilities, the new inbound yard lies along the north and west sides of Asylum hill, while the new outbound yard is located along the north and east sides of the hill. Both of these yards are of the hump type, equipped with electro-pneumatic retarders, electro-pneumatic switch machines, color-light humping signals, floodlight teletype printers, pneumatic tubes for conveying waybills and train lists, and special equipment for squirting hot oil into the journal boxes of cars as they pass over the hump during the winter.

Inbound Yard Has 28 Classification Tracks

The new inbound yard was designed to receive and classify cars destined to all points in the metropolitan district of Boston, which extends over a radius of about 15 miles. This yard consists of 8 receiving tracks with a capacity of 427 cars, and 28 classification tracks, with a capacity of 927 cars.

The main receiving tracks lie on the west side of the yard, the first five tracks being used exclusively for receiving road trains from the north, while the sixth track is used as a caboose track. Two other receiving tracks are located in the classification yard and are used occasionally to receive trains arriving at the lower end of the yard. The classification yard is laid out on the multiple ladder principle, the yard being divided into six groups of tracks, each served by a sub-ladder. The first nine classification tracks serve the freight terminal facilities in East Cambridge, while the next three serve the Hoosac Tunnel docks and Warren Bridge territories to the East. The lower end of these tracks was made approximately 21 ft. lower than the elevation of the tracks serving the East Cambridge



The Track Layout of the New Classification Yards Shows the Congestion in This Area

territory, this being done to give them direct connection to the territory which they serve.

Of the next group of six tracks, one is used as a receiving track for road trains reaching the terminal at the lower end of the yard from the East, while the remaining five are used for classifications for the Mystic Wharf and Rutherford Avenue territories. The next group of seven tracks is used for classifications within the metropolitan district on the Portland division. The last five tracks of the yard are on the opposite side of Asylum hill, one of these being used as a receiving track for trains which arrive at the lower end of the yard from the West, while the other four are for classifications to the territory lying west of the yard.

A study of the arrangement of the tracks adopted and the connections at the lower end of the yard will show how this arrangement provides through outlets from the yard in four widely diverging directions at three different grades: the freight terminal immediately south, the Warren Bridge territory to the Southeast; the Mystic Wharf and Portland Division territories to the East, and the Fitchburg Division territory to the West.

All of the classification tracks in this yard are gravity tracks, and with the exception of the three tracks serving the Warren Bridge territory, are constructed on a 0.25 per cent grade to the clearance points at the head end, followed by a 0.35 per cent grade to the car retarders on the sub-ladders. Both of these grades are compensated 0.03 per cent per degree of curvature. The three tracks serving the Warren Bridge territory have a 0.25 per cent grade for about 15 car lengths at the upper end, the lower end of the tracks being on about a 1.25 per cent descending grade to reach the proper grade at the lower end of the yard.

In the operation of the inbound yard, all through road trains are received at the north end on one of the west side receiving tracks, where they are inspected, checked, bled of air and made ready for the hump. When ready they are pulled back over the receiving track lead by a hump engine and pushed over the hump for classification.

A special feature in connection with the receiving of trains in this yard is the method of handling cabooses, which was adopted in order to eliminate the time lost in handling cabooses with the hump engine. This involves the practice of dropping the caboose from the rear end of an incoming train onto the caboose track as the train enters one of the receiving tracks. The caboose is cut off about 100 ft. in advance of the first receiving track switch by one of the road crew, and the caboose track switch, which is power-operated, is thrown from the assistant yard master's office at the inbound hump. All of the receiving track switches are equipped with direct-acting electro-pneumatic switch

Each Pair of Retarders Serves a Group of From Four to Six Tracks

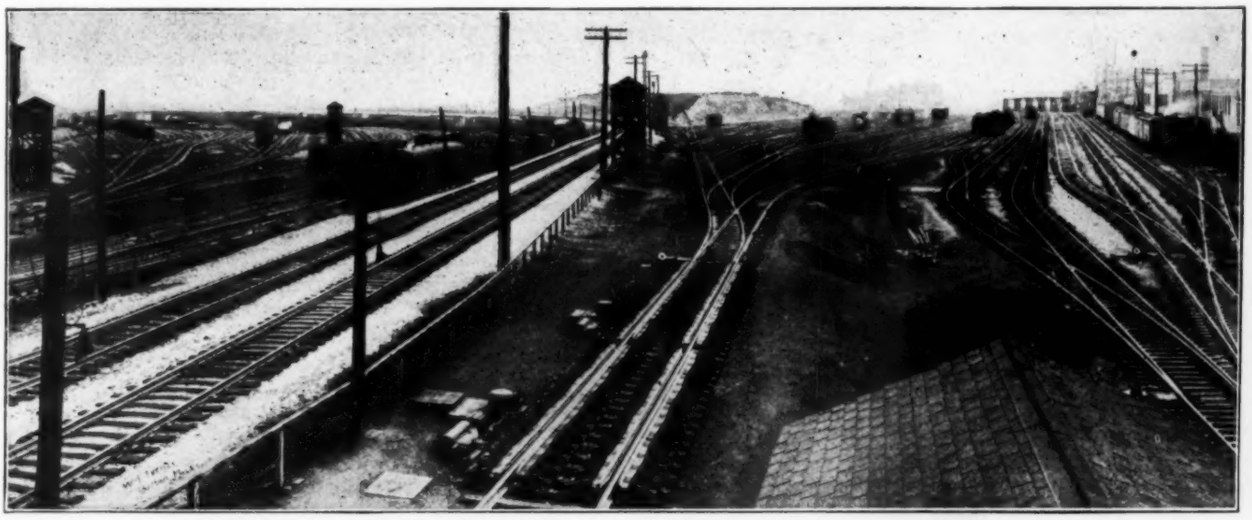
movements controlled from a small cabinet in the assistant yard master's office at the inbound hump.

Outbound Yard Has 30 Classification Tracks

The outbound yard on the north and east sides of Asylum hill is in many respects similar to the inbound yard, being a hump yard equipped with car retarders, power-operated switches, loud speakers, teletype machines, etc., and with classification tracks on a gradient of 0.25 per cent, compensated for curvature at the rate of 0.03 per cent per degree of curve.

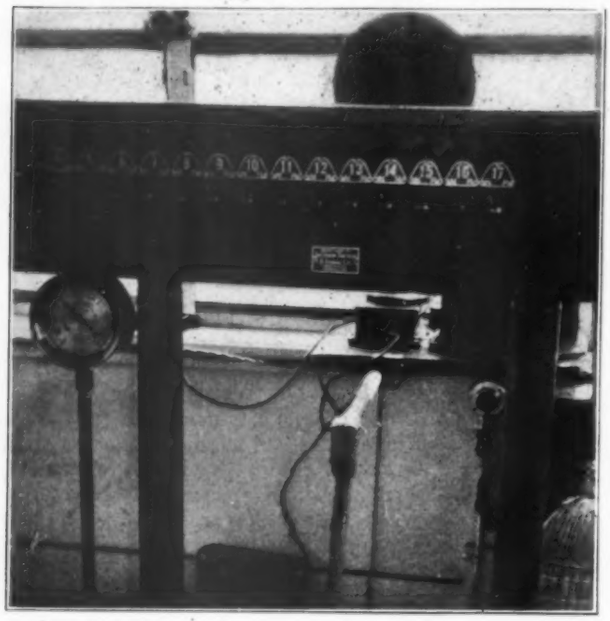
In this yard, which, like the inbound yard, is laid out with multiple leads, are 38 tracks; 8 receiving tracks with a total capacity of 301 cars, and 30 classification tracks with a total capacity of 1066 cars. The cars handled in this yard originate within the terminal, or are brought in from the metropolitan district by short local trains and then dispatched in road trains over three different divisions.

To meet this operating condition, the yard was laid out so that cars could be received from three different directions simultaneously without interference between switch engines or local trains, and after being classified,



View From the Hump of the Inbound Yard with the Outbound Yard at the Left and the New Southern Division Main Line Double Track Between the Two Yards

dispatched over the three divisions without conflict between road trains. Thus three tracks are located on the west side of the yard for cars originating in the territory on that side; four in the center for cars originating at the Mystic Wharf and Rutherford Avenue territories, and one on the east side for cars from the territory to the East. The 13 classification tracks on the west side of the yard are used for classifying cars destined to the West over the Fitchburg division. The next 10 classification tracks are for cars destined to the East over the Portland division, and the remaining seven tracks



Control Cabinet in Tower 5, for Direct-Acting Switches

on the east side are for the classification of trains dispatched northerly over the Southern division. All cars into and all trains out of the outbound yard are received and forwarded from the lower end of the yard. The outbound caboose track lies west of the No. 1 receiving track, and all trains are caboosed at the high end of the yard by the hump engine.

400,000 Cu. Yd. of Excavation to Build Yards

In providing the site for the new classification yards it was necessary to excavate approximately 400,000 cu. yd. of material from Asylum hill. This material was used, in addition to leveling up the lower ends of the yards, for building the new embankment of the Southern Division main line passenger cut-off, grading the additional team tracks, filling the trestles in the Charles and Miller rivers, and for filling the lower end of the inbound receiving tracks. The grades in both yards are alike except for the amount of compensation necessary for curvature; the hump grade averaging 3 per cent for approximately 75 ft., with 1.8 per cent through the first set of retarders, then 1.2 per cent grade on the main ladder to the head end of each set of group retarders which are on an 0.8 per cent grade. From the heel of each group retarder to the clearance point of each classification track the grade is 0.35 per cent, which joins the 0.25 per cent grade of the yard body tracks. These grades have proved entirely satisfactory and are sufficient to carry ordinary empty cars at proper speed to the classification tracks, with the car retarders to control the speed of the heavier or more easily rolling cars.

Multiple Leads Cut Retarder Installation Cost

One of the special features of the yard layouts is the grouping of the classification tracks, each group being served by a separate sub-ladder. These groups, which consist of from four to six tracks each, were laid out with two ideas in mind: to separate the cars into many diverging routes within a minimum distance, and to decrease the length of the ladder and travel necessary for cars to reach clearance on the classification tracks. In the inbound yard eight diverging routes are reached within 350 ft. of the crest of the hump, and in the outbound yard, seven diverging routes are reached within 400 ft. of the crest of the hump; these two features minimizing the effect of slow running cars on the capacity of the hump.

With the grouping of tracks, a double retarder unit located on each of the group leads provides sufficient retardization for handling cars to all of the tracks in a group, superseding the practice in early retarder installations of equipping each classification track with an individual retarder unit. Thus the multiple ladder design not only provides switching capacity for the yard, but also decreases the amount of retardation required. The car retarder installation in the inbound yard consists of 16 retarder units with a total length of 1,232 lineal feet, 28 direct-acting switch units and two control machines. The installation in the outbound yard consists of 15 retarder units having an aggregate length of 1,100 ft., 30 direct-acting switch movements, and 2 control machines.

From the above it is evident that the grouping of classification tracks has resulted in the maximum utilization of space, and a smaller retarder installation cost, with decreased operating and maintenance costs. The Boston & Maine yards were the first classification yards in the country to group tracks in this manner with the specific idea of effecting these economies, without reducing the hump capacity.

Retarders Are of the Electro-Pneumatic Type

The retarder units installed are the latest type manufactured by the Union Switch & Signal Company, being air-operated and electrically controlled. The brake shoes of the retarders are bolted to cast steel beams, which in turn are pinned to trunnions through which they are secured to the ties. This construction allows the brake beams to move to and from the rails as air is supplied or exhausted from the operating cylinder.

The trunnion springs of the retarders, which are to cushion the initial shock as cars enter the retarders, are so set in relation to the ties and retarder brake beams that the number of cross members in the units is reduced, and the inter-tie space, therefore, left as clear as possible for tie tamping. These springs are of the volute type, which minimizes the possibility of their being damaged by dragging equipment. A new type of brake shoe used is of lighter weight than the shoes used in previous installations, this new shoe being designed specifically to increase its service life and also to increase the braking force which it is capable of exerting.

As is the case with previous installations of the Union Switch & Signal Company's retarders, the retarders in the Boston & Maine's yards operate at four different pressures which may be set up in the retarder cylinders at the will of the retarder operator. The pressure used at any particular time depends upon the gross weight of the car as shown on the switching list, and the operator's judgment of the running quality of the car being handled.

The retarder control machines at the yards are housed in four control towers, two in each yard, one known as Tower A, being located just below the hump to control the throat of the yard, and the other known as Tower B, being located at a point lower in the yard to control the retarders and switches more distant from the hump. The control machines, which are of sheet steel with the control levers mounted on a sloping panel facing the operator, are so arranged that the operator can face the machine and at the same time have a clear view of all of the track functions which he controls.

With the exception of Tower B in the outbound yard, which has three control panels, one of which controls switches only, each of the towers has two control panels. These panels are exactly alike, having three horizontal rows of control levels, the top and middle rows controlling the retarders, while the bottom row is for switch operation.

Lower Ends of Yards Have Power Switches

All of the lead switches at the lower end of both the inbound and outbound yards are equipped with power-operated switch movements controlled from three towers. At the lower end of the inbound yard is a main line interlocking plant from which five yard switches and a crossover are handled through a control cabinet. At approximately midway between the lower ends of the inbound and outbound yards, adjacent to the Southern Division passenger cut-off at the point where it crosses over the Boston & Albany, a high frame tower was built. This tower houses a control cabinet for 27 switches in this territory in both the inbound and outbound yards. At the easterly end of the outbound yard is another main line interlocking plant from which 19 of the outbound yard switches are operated through a 14-lever control cabinet.

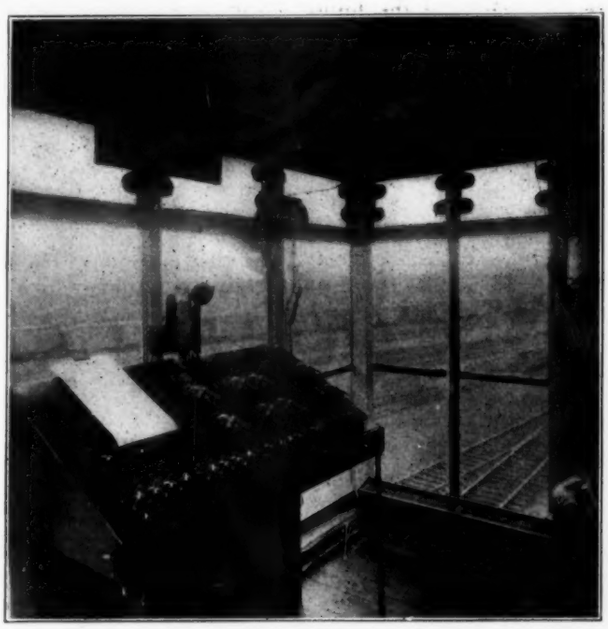
The switch movements are of the direct-acting Union Switch & Signal Company electro-pneumatic type, so arranged that each switch may be trailed through without damaging the switch or the machine, and if trailed through, the switch will automatically restore itself to its original position, corresponding to the position of the tower lever. The levers controlling these switches are merely small thumb knobs in a row on the front of the cabinet, the levers being connected to shafts which operate circuit controllers inside the cabinet. There is no locking between the levers nor are the levers locked in any way by trains on the track.

Loud speaker telephone circuits were installed from a point on the Fitchburg division through each of the three switch operating towers and the assistant yardmaster's offices at the lower end of each of the yards, to a tower east of the yards on the Portland division. By means of this telephone circuit all of these towers are advised simultaneously of the movements of yard or road trains in and out of the yards or between yards, permitting the setting up of the routes for their movement in advance, and thereby insuring prompt and continuous movement.

Neither the switches nor the levers are locked in any way, the towerman simply performing the work which otherwise would be done by ground switchman. The switches are equipped with standard targets and lamps which indicate to the crews the position of the switches.

Central Power Plant

Power for the operation of the retarder and switch mechanisms in both yards is supplied from a central power house located on the north side of the outbound yard, about 800 ft. from the hump. The equipment consists of two motor-driven water-cooled compressors, each provided with automatic governors and having a capacity of 382 cu. ft. per min., and two sets of 100 a.h. storage batteries of six cells each, supplemented by Union copper oxide rectifiers for charging from a 110-volt, a.c. supply. One of the compressors of the installation is sufficient to take care of the maximum demand of both yards, the second compressor being provided merely as a reserve unit.



The Control Levers for Retarders and Switches Are Arranged on a Sloping Panel

In arranging the power supply lines at the yards, every precaution was taken to preclude an interruption in the power supply in case of a line failure. To this end the main air lines are installed underground in a loop arrangement with valves at convenient intervals so that in case of damage to the main piping, it may be sectionalized and air supplied through other sections of the loop. The branches of the air lines are also located under ground, and are provided with cut-off cocks so that the air can be turned off at any one of the retarder or switch-operating units. The wires for the electrical control of the apparatus are likewise all located under ground, in armored cable.

Special Communicating Systems Facilitate And Speed Yard Operation

Other special equipment installed within the new classification yards to speed up operation, include a loud-speaker system, teletype transmitting and receiving machines, hump signals, floodlights, and a pneumatic tube conveying system. The latter facility has not been completely installed as yet.

The loud-speaker system provides transmitters and microphones at each hump and at each of the retarder control towers. Through this equipment, any unusual condition in the yards, changes in switching lists, notification of bad order cars, and messages of a similar nature can be communicated directly and quickly.

In the teletype installation, separate transmitting machines are provided for each of the yards to permit the sending of switch lists to both yards simultaneously. The transmitting machines are located in the yard

clerk's room of the general yard office, while the receiving machines are installed at the hump master's office and in all of the retarder control towers. Through this equipment, switching lists for both inbound and outbound trains are made available to tower operators simultaneously with the typing of the lists in the yard office.

In the case of inbound trains, the conductors deliver their waybills at the hump yardmaster's office, which is located between the hump lead and the receiving yard lead. In the outbound yard, as all cars are received and trains dispatched from the lower end of the yard, the bills are delivered at the assistant yardmaster's office at that end of the yard and transmitted from that point to the general yard office by pneumatic tubes.

The pneumatic tubes, which are not completed, will extend from the assistant yardmaster's office at the lower end of the outbound yard in a direct line to the general yard office at the upper end of the yard. There will also be a pneumatic tube from the humpmaster's office in the inbound yard to the general yard office. Through this tube system all waybills from trains entering either yard will be sent promptly to the general yard office where the switching lists are made. Bills for outgoing trains will then be sent to the lower end of the outbound yard for the conductors of outbound road trains.

Hump Signals and Journal Oiling Equipment

The operation of the hump in each yard is controlled by a color-light signal operated from the crest of the hump. This signal gives five indications: green, proceed at normal yard speed; double yellow, hump fast; yellow, proceed at normal hump speed; red, stop; and red and yellow, back up.

On the same mast carrying the hump signal, but facing the yard, is a two-indication color-light signal which governs the movement of engines in the classification yards. This signal shows green to indicate that engines in the yard may come on to the ladder, and red, to hold engines in the clear. This signal in both yards is operated by the same controller as the hump signals, and must show red in order for the humping signal to function.

Another feature installed in these yards is equipment designed to apply hot oil to the journal boxes of cars as they pass over the hump. This equipment, which is intended for use only during cold weather to insure the free rolling of cars, consists essentially of a steam coil box in which oil is heated to a temperature of about 180 deg. F., a small air compressor unit, and a simple piping arrangement with flexible hose connections and nozzles on each side of the hump track. With this equipment one man on each side of the track squirts a charge of hot oil into the journal boxes and closes the covers as the cars pass.

New Facilities Permit Efficient Operation

In the design, construction, and equipping of the new yards, the paramount feature of maintaining a smooth and continuous movement of cars through the terminal was kept in mind. That this has been accomplished is evidenced by the fact that since the completion of the yards, practically all shipments have been speeded up from 12 to 48 hrs.

The two new yards are handling cars at the rate of approximately 1,000,000 cars per year, a number greater than that handled formerly in eight different yards, and the new yards still have a combined reserve capacity of more than an additional million cars a year. This condition has not been brought about as much by speed in operation as by carefully planned and consistent operation, in which every one concerned knows in advance what is coming and what steps must be taken to keep cars moving.

At the present time about 1,350 cars are being handled over the inbound hump and about 1,200 over the outbound hump in each 24 hours. Approximately 60 per cent of the inbound traffic is received between 11 p.m. and 5 a.m., while a similar portion of the outbound business is forwarded between 6 p.m. and midnight.

Of the inbound traffic, all beef and perishable freight must be set by 5 a.m., and all other freight by 7 a.m. To accomplish this, it is necessary that inbound trains be completely classified within two hours of their arrival at the terminal, and toward the early morning hours, within one hour. Under ordinary operation, no difficulty is experienced in handling cars into the receiving yard and over the hump at the rate of from 150 to 180 per hour, with the actual humping speed in excess of these figures. In accomplishing this, one or two humping engines are employed as necessary, following each other to the hump with strings of cars as fast as they are made ready for humping.

While the larger portion of outbound traffic departs between 6 p.m. and midnight, cars are received for switching during the entire 24 hrs., the peak period in the outbound yard being from 3 p.m. to 11 p.m., and in the inbound yard, from 11 p.m. to 7 a.m. From 7 a.m. until 3 p.m., only one hump crew is used in the two yards, working principally in the outbound yard, but going to the inbound yard if there are any cars to be switched.

The crew in the inbound yard consists of a conductor, a helper, and two retarder operators, while in the outbound yard, a third retarder operator is used. An additional helper is used with each additional engine. The fact that only 13 retarder operators are on duty during the 24 hrs. is a striking contrast to the force of about 84 car riders which was employed in the three tricks during the short period while the yards were being equipped for retarder operation.

Large Savings are Being Effected

With the completion of all of the freight terminal facilities of the Boston & Maine at Boston, including the new yards, large operating economies were immediately in evidence. An idea of the extent of these economies is gained from the following list of major savings effective. The figures in this list were determined by comparing the operating costs of the new terminal facilities over a period of eight weeks ending February 23, 1928, with the corresponding period of eight weeks in 1927.

Savings Effected in Eight-Week Period

Switching service	$ 51,476
Locomotive repairs	17,466
Fuel	12,703
Hostler expenses	1,944
Car inspection and repair	20,360
Per diem charges	44,433
Total of major savings	$148,382

All of the engineering and construction work in connection with the new classification yards was carried out under the general supervision of W. J. Backes, chief engineer, and R. J. Hammond, assistant to the president. The grading and building construction was done by Dwight P. Robinson Company, Inc., New York, while all of the track work was handled by company forces.

Handling Perishables Speedily

Florida East Coast cuts time to market by careful scheduling and attention to detail

A solid Train of 104 Cars of Tomatoes on the Florida East Coast

THE schedule under which perishables move from eastern and southern Florida to the northern markets is now 24 hours faster than it was prior to November, 1925. The Florida East Coast has been primarily responsible for this reduction; its schedule from Hialeah yard, just outside of Miami, to Jacksonville, is now 18 hours faster than it was three years ago. Moreover, since the new schedule was inaugurated in December, 1925, its perishable trains have never failed to make the proper connections at Jacksonville. This improvement covers the movement of citrus and other fruits, potatoes, tomatoes and mixed vegetables. In addition, the schedule of the pineapple trains, which has always been fast, has been reduced eight hours in the past five years, and is now 29 hours from Key West to delivery to connections at Jacksonville, 522 miles.

These results have been brought about by the careful scheduling of trains, increasing train speeds while also increasing the tonnage of trains, the last two factors having shown a remarkable increase in the past three years, as follows:

Year	Train Speed	Gross Ton Miles per Train Hour
1925	9.1	12,670.1
1926	10.8	18,590.9
1927	14.9	25,801.4

During some months, when the perishable movement is heavy and before the winter passenger business is at its height, train speeds have averaged as high as 17.6 miles per hour. As a result of this increased speed of handling, claims arising from delays to cars have been eliminated, except on an occasional car which has to be set out because of bad order, and the total claim bill has been reduced materially, a result that was attained almost entirely by more efficient handling of the perishable traffic.

The Perishable Movement

The total movement of perishables on the Florida East Coast amounts to between 20,000 and 30,000 cars annually. Comparative figures of the movement are given in Table 1, covering perishables originating on the line only. In addition, from 3,000 to 4,000 cars of pineapples from Cuba are handled by the F. E. C. from Key West to Jacksonville each year.

In general, the perishable movement begins in September and lasts until June. The citrus fruit movement continues over practically all of that period, beginning to move from the groves south of Miami in September. In October, citrus begins moving from the Fort Pierce district on the main line, and the Lake Okeechobee district on the branch, and, as the season advances, producing areas as far north as New Smyrna begin shipping. The citrus movement is finally disposed of in May.

The mixed vegetable movement begins in December and is usually over by April 1. It consists principally of beans, with some celery, egg-plant and peppers, and most of it moves from the Fort Lauderdale and Lake Okeechobee districts.

Table 1.—Details of Perishable Movement

Potatoes		*Citrus Fruit*	
1923-1924	2,443 cars	1923-1924	5,829 cars
1924-1925	4,512 cars	1924-1925	5,020 cars
1925-1926	4,022 cars	1925-1926	4,498 cars
1926-1927	4,419 cars	1926-1927	3,903 cars
Tomatoes		*Mixed Vegetables*	
1923-1924	5,563 cars	1923-1924	2,120 cars
1924-1925	3,349 cars	1924-1925	990 cars
1925-1926	2,338 cars	1925-1926	568 cars
1926-1927	6,480 cars	1926-1927	2,237 cars

About 75 per cent of the tomato movement originates in the territory between Miami and Florida City. Shipments begin in December, but the heavy movement does not take place until the latter part of February and continues through March and April. A considerable movement from the Lake Okeechobee district is handled in April and May.

About 80 per cent of the potatoes are produced on the St. Augustine-Palatka branch, although there are some shipments from main line points as far south as Dupont. Since the producing territory is confined to a relatively small area, the shipping season is short, beginning about April 1 and continuing until May 25.

About 150 to 200 cars of Florida pineapples are handled each season. Twenty years ago the domestic movement from the Fort Pierce district amounted to 3,000 cars, but disease and insect pests infested the crop the following year and destroyed the plants. Since the exportation of pineapple shoots is forbidden by the Cuban government, the pineapple growers were unable to replant and the bulk of the pineapple movement now comes from Cuba. This movement begins in April and ends in June. In addition to the pineapples, there is a

small perishable movement from Cuba, amounting to some 200 cars, consisting of grape-fruit from the Isle of Pines and mixed vegetables from Cuba proper.

The Car Supply

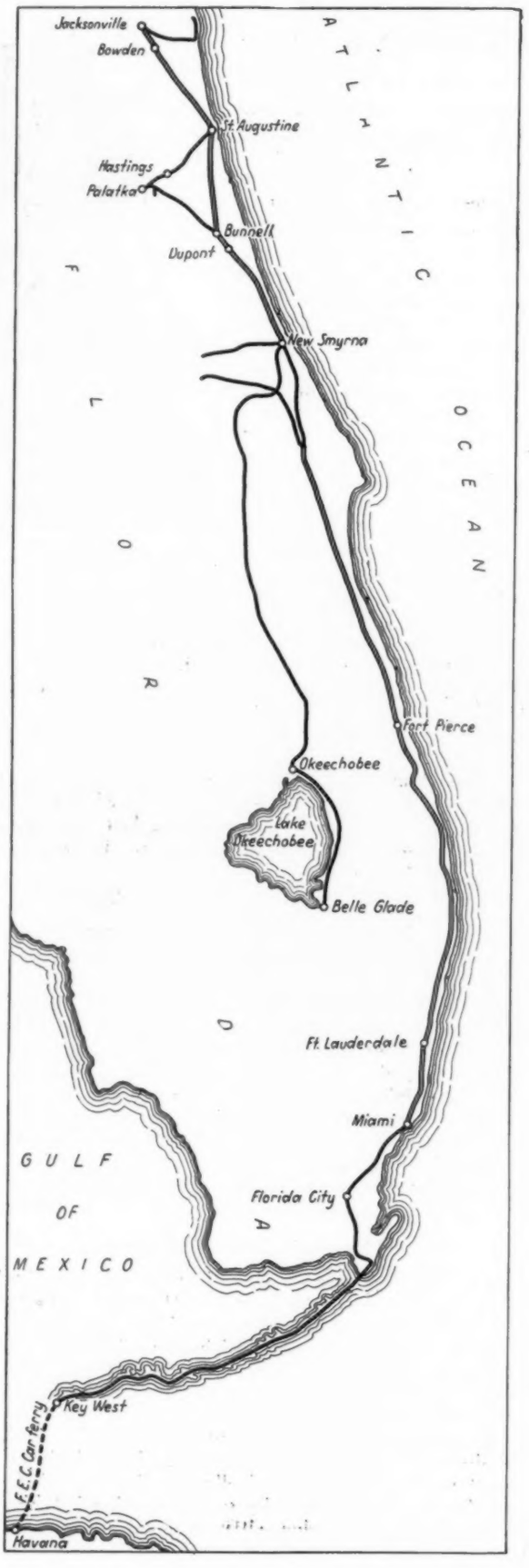
Refrigerator cars for all perishables, except potatoes, are supplied by the Fruit Growers' Express, which company also attends to the icing of equipment. In order to determine the size of the movement and provide all the necessary empties, superintendents and their staffs, agents and traffic department representatives canvass the producing territories while the crops are being planted. Reports are rendered to the general superintendent of transportation, giving the acreage in detail and the crop is checked weekly during the growing season. The car company maintains an organization for the same purpose and a weekly exchange of crop estimates is made, which provides a check against possible errors.

In the early fall, some weeks before the movement begins, all refrigerator cars coming to the Florida East Coast are held after they have been unloaded, so as to provide a working supply of empty equipment when the shipping season starts. These cars, together with any additional cars that may be necessary, are distributed to the points on the line where early production is expected. As the movement grows, more and more empties are delivered to the F. E. C. at Jacksonville in accordance with the crop and production estimates. The men making these estimates, as a result of years of training, are rarely wrong in their reports on the empty car needs.

New Facilities Aid Movement

The main line of the Florida East Coast is nowhere more than a few miles from the ocean, and there are no grades of more than 0.3 per cent between Key West and Jacksonville. Thus, the only limit on the length of trains is the capacity of the engines and interference with passenger trains. To take full advantage of these conditions, the line has been double-tracked between Miami and Jacksonville, 366 miles, the last section having been completed in 1926. In the same year, a freight cut-off was completed around Miami, the use of which eliminates interference with the heavy passenger traffic into and out of Miami, and avoids numerous street crossings at grade in the city proper. A yard, with a capacity of 3,735 cars, was built at Hialeah, on this cut-off, a few miles northwest of Miami, which is used very largely for the handling of perishable traffic. Another yard, with a capacity of 3,362 cars, was built at Bowden, just south of Jacksonville, to serve as a northern terminus. There are also several smaller yards at the various producing centers. It is not necessary to have an elaborate series of classification yards to handle this business, since most of it is reconsigned after leaving F. E. C. rails, and pre-classification, under the circumstances, would be inefficient and unnecessary.

The prompt and efficient handling of the perishable movement, which normally takes place at the time of heavy tourist traffic, was the basis for planning the present facilities. In addition to the added track capacity and to get the maximum results from it, motive power of correct design and capacity was provided. The perishable trains are hauled by engines of the 800 class. These engines, of the Mountain type with 28-in. by 30-in. cylinders, 69-in. drivers and large boiler capacity, are capable of maintaining the relatively high speed essential in the free movement of the long heavy perishable trains without delay to fast passenger trains that must be given preference. The safe handling of the traffic under these conditions is due to the high standard of maintenance of both track and equipment.



Where the Perishables Are Grown on the F. E. C.

Citrus fruit, tomatoes and mixed vegetables are handled alike, insofar as their transportation is concerned, while potatoes require separate handling and operating methods, in view of the large movement in a short shipping season. Pineapples are also handled separately.

The General Perishable Movement

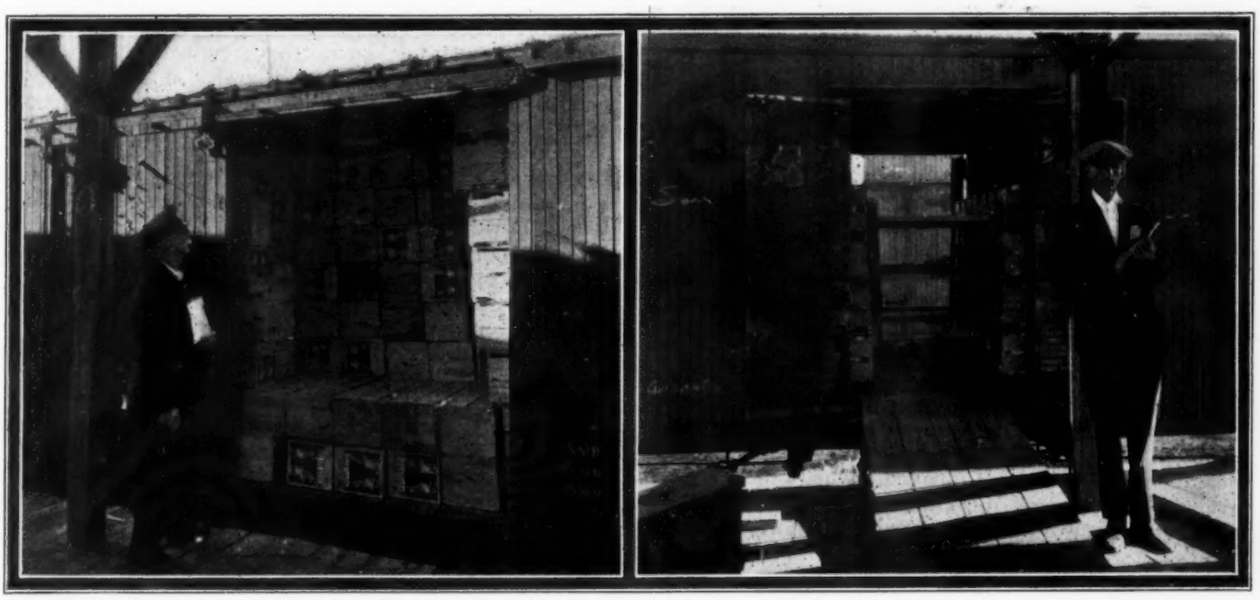
The basis of the entire movement of citrus fruit, tomatoes and mixed vegetables is train 350 and sections thereof. By means of these trains all perishable freight on the F. E. C. is moved the day it is loaded. These trains are scheduled to make the 266-mile run from Miami to Jacksonville in 18 hours. Since the time when most of the sections of this train are run coincides with the heaviest passenger movement, it was necessary to exercise considerable ingenuity in scheduling. The passenger train movement consists of seven through and two local trains in each direction daily in the winter months, as compared with two through and two local trains in the summer.

Train 350 is scheduled to leave Hialeah yard at midnight and to arrive at Bowden yard at 6 o'clock the next evening. When extra sections are run, as is the case during practically the entire shipping season, they are run as advance sections, so that, regardless of how many sections are run, the last section arrives at Bowden by 6 p.m., in time to make connections with the perishable trains of the roads north of Jacksonville. No passenger trains follow No. 350 for 4 hr. and 5 min. Under normal conditions, the average load carried by these trains is 125 cars, but when an advance section is run that is to be followed more closely by a passenger train, this is reduced to 105 cars to enable the perishable train to keep out of the way of the following passenger train.

The pick-up service operating in the producing territory is so arranged as to connect with train 350 or its advance sections at convenient points and, when a sufficient amount of tonnage is available, advance sections of No. 350 are run from terminals north of Miami into Bowden. This arrangement is described in more detail later.

The producing area between Miami and Florida City is served by a crew which sets out empties on the southbound trip and picks up loads northbound, bringing them into Hialeah in time to connect with No. 350 there. The main line between Hialeah and Fort Pierce is served by a pick-up crew, which leaves Hialeah in time to gather the loads and bring them into Fort Pierce to be placed on train 350 there. Another pick-up run operates from Fort Pierce to New Smyrna, where it makes connection with No. 350. The large movement of perishables from the Lake Okeechobee district is also brought into New Smyrna over the branch in time to make connection with No. 350 there. Two smaller branches are also served by pick-ups out of New Smyrna. When business is sufficiently heavy, from one to three perishable trains are made up at New Smyrna from the cars coming in off the main line as far south as Fort Pierce and off the branches. These trains are run through to Bowden as advance sections of No. 350.

The only classification made on this business is to separate the cars as between those to be delivered to the Atlantic Coast Line, the Seaboard Air Line or the Southern at Jacksonville. When these trains are filled out at intermediate yards, the classification is maintained. Any advance sections made up at terminals north of Hialeah are similarly classified, so that when the perishable trains reach Bowden, no classification is necessary, and the cuts may be delivered to the connecting lines without delay.



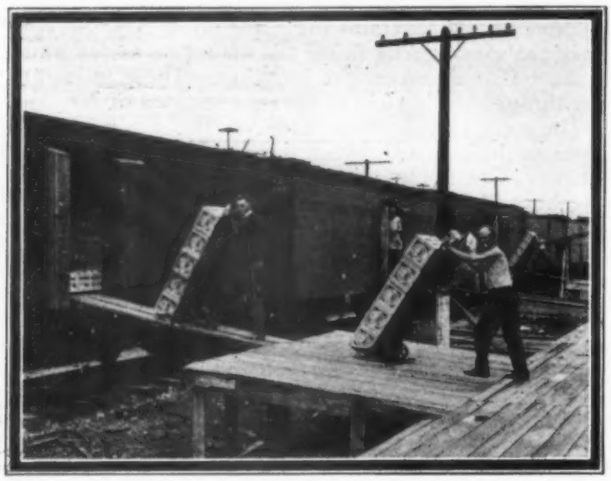
Before and After:—Right: Customs Inspector Going Over Pineapple Car as it Arrives from Cuba; Left: How the Pineapples are Reloaded for Movement North

The Potato Movement

Although the potato shipping season lasts for only six or seven weeks, and the producing area is small, over 4,000 cars are shipped each season. The potatoes are handled in ventilated box cars specially provided for the purpose. An arrangement has been worked out whereby all potatoes loaded on the line during the day are delivered to connections at Jacksonville before midnight of the same day. Three pick-up trains are operated to cover the producing territory. One operates from New Smyrna via the old main line through Bunnell, East Palatka and St. Augustine to Bowden yard, 116 miles. This train is run light from New Smyrna to Dupont, where the pick-up service begins, and it continues to gather loads from Dupont to East Palatka. The train is then run through from East Palatka to Bowden. Another train leaves East Palatka and runs light to Hastings. This is the principal potato shipping

station and, normally, a full train is picked up there and run through to Bowden. If sufficient tonnage is not available, this train fills out at loading points between Hastings and St. Augustine before proceeding to Bowden. The third train starts at East Palatka and gathers cars as far as Hastings. This train then picks up all cars loaded between Hastings and St. Augustine that the preceding train could not handle and proceeds to Bowden.

The perishable movement from Cuba is handled by the Florida East Coast Car Ferry Company between



Loading Vegetables on the Florida East Coast

Havana and Key West. Pineapples constitute the largest perishable commodity. All the pineapples imported from Cuba are grown within 75 miles of Havana. The Cuban railways load them in practically any class of equipment available. The normal loading is 300 crates per car, but for the movement from the fields via rail to Havana and by car ferry to Key West, as many as 600 crates are loaded per car. As far as possible, the Cuban railways load the pineapples in equipment being returned to railways in the United States, although some of the fruit is loaded in Cuban cars when others are not available. Since the movement can reach Key West safely without protection, and twice the normal loading per car is possible, the car ferry is relieved of handling many cars back and forth. Upon arrival at Key West bulk is broken on all cars and the pineapples are transferred into refrigerator cars to be moved under ventilation. Such Cuban equipment as is received is returned to Havana by the car ferry while the other equipment is handled north empty for return to its owners.

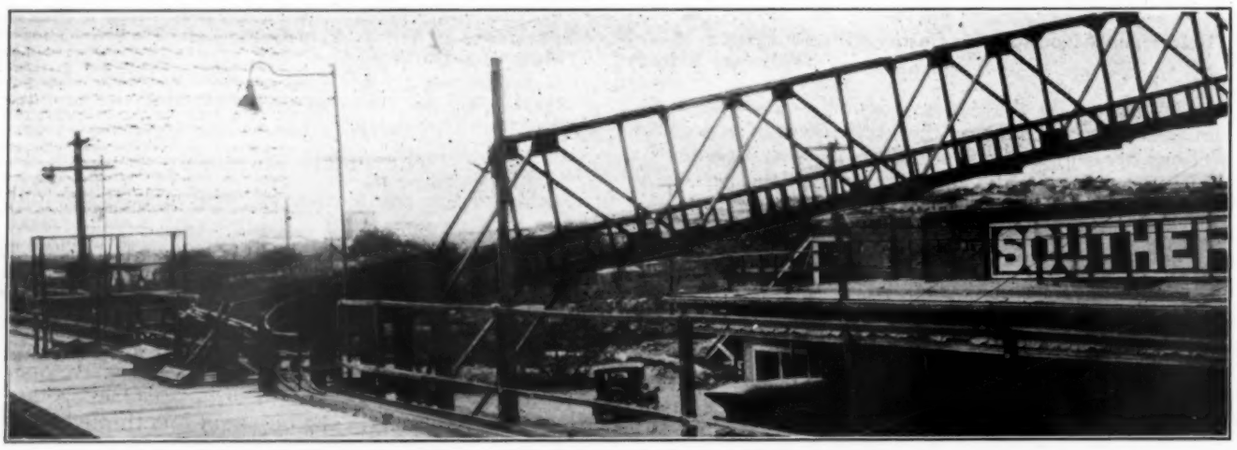
The pineapple crop, like other crops, is carefully studied by representatives of the railway and the car company in Cuba from the time it is planted so that, when it is ready to move, an accurate estimate of the total crop is available. This permits the placing of a sufficient number of empty refrigerator cars at Key West currently to handle the movement.

Special train service is operated for 20 cars or more and a schedule of 29 hours is maintained from Key West to delivery to connections at Jacksonville. Since the pineapple season does not begin until April, when the passenger business has begun to wane, it is possible to run the pineapple trains through with few stops for any purpose. The trains are inspected at Hialeah, Fort Pierce, New Smyrna and Bowden.

Beginning with the first pineapple train, the trains are numbered consecutively, as they leave Key West, until the end of the season. These numbers are maintained through to destination. The movement of these trains is reported currently to northern connections so that there is no delay in making deliveries at Jacksonville. The cars of pineapples are made up into solid trains at Key West to run through to connections at Jacksonville. As a result, no classification is necessary en route. In the rare instances when one or two cars for some other connections are in the train, the necessary switching is done at Bowden.

The empties for all perishable loading are thoroughly inspected before being delivered to the shippers. They are given a complete and rigid inspection when they are received from connections at Jacksonville. This is followed by another inspection at the loading point. Bad order cars have been much reduced. In those cases, however, where cars are set out on account of bad order, special attention is given to repairs. A telegraphic report must be made to the general superintendent of transportation on each bad order car, and such cars are given individual attention until they are repaired.

* * * *



Truss Span From Ice House to Dock Expedites Re-icing of P. F. E. Cars

Ice for the bunkers of fruit and vegetable cars of the Pacific Fruit Express is delivered to the re-icing dock at Big Springs, Tex., on the Texas & Pacific, over a ramp supported by a 60-ft. steel truss span. Wye-branches constructed on curves having radii of 7½ ft. divert the blocks of ice to the right or left lengthwise of the dock. The inclination of the ramp is sufficient to give the ice a velocity of 16 miles per hour or enough to cause the blocks to skid as far as 250 ft. along the dock.

Acquisition by Santa Fe Will Solve Orient Problems

Improved condition of Orient revenues since 1922 due largely to increased oil traffic

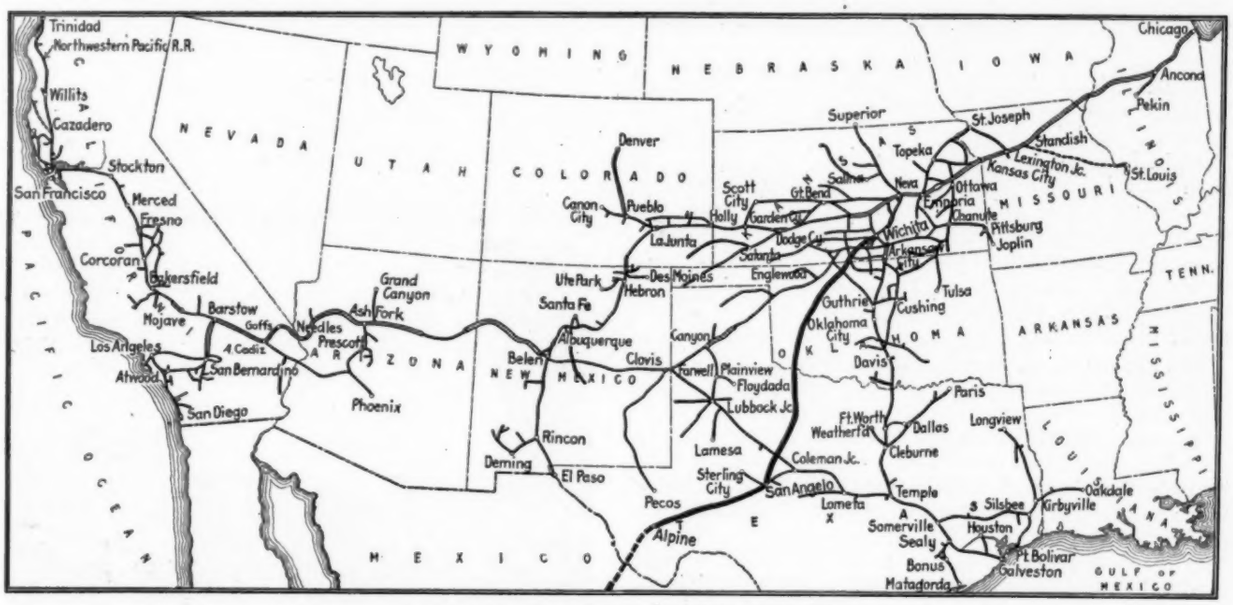
FAVORABLE action by the Interstate Commerce Commission on the petition of the Atchison, Topeka & Santa Fe for permission to acquire 40 per cent of the stock of the Kansas City, Mexico & Orient, if granted, will bring to a close the plans of Arthur E. Stillwell, the builder of the Orient, for the construction of a trunk line connecting Kansas City and the Southwest with the Pacific Ocean via the shortest route. Pending action by the commission, the Santa Fe has declined to reveal its plans for the placing of the Orient in its already extensive system in the Southwest. Two possibilities suggest themselves, however, either, in keeping with the original plans, to form a new transcontinental route and short outlet to the Pacific Ocean on the Gulf of California or as a feeder tapping a large area in Kansas, Oklahoma and Texas not now reached by the Santa Fe. As an immediate use of the Orient, the first plan can be dismissed for the larger road's officers have pointed out that at the present time very little traffic finds outlet in that direction.

There are two gaps in the line, one of about 200 miles in Sonora, Mexico, and another of about 125 miles on either side of the Rio Grande. To complete Stillwell's original plan it will also be necessary to construct about 160 miles of line between San Angelo, Tex., and Del Rio to form a connection with the National of Mexico at the latter point and establish a short route to Mexico City. Topolobampo, on the Gulf of California, while a natural harbor, is still undeveloped. Its port facilities are meager and considerable dredging must be done at the entrance to the harbor before ships of sizable draft can enter.

An examination of the map of Kansas, Oklahoma & Texas shows that as a feeder the Orient, between Sweetwater, Tex., and Cherokee, Okla., practically bisects a triangular area bounded by Santa Fe lines and having sides about 335, 480 and 455 miles long respectively. With the exception of several short branch lines, no one of which extends into this area for more than 43 miles, it is a territory untouched by Santa Fe trackage. South of Sweetwater the Orient line to Alpine, Tex., also taps a section as yet unexploited by the Santa Fe.

The Orient now operates a continuous line between Wichita, Kan., and Alpine, Tex., 735 miles. In Mexico the Orient operates 222 miles of line in three sections, between Pulpito, Chih., and Chihuahua, 96 miles, between Minaca, Chih., and Sanchez, 74 miles and between Fuerte, Sin., and Topolobampo, 62 miles. Entrance to Chihuahua from the west is over the line of the Mexico North Western.

During the early construction of the line in Mexico, President Diaz, promised aid, but this help was cut short by his deposition. Mexican aid was again promised in 1923 when the Mexican government announced that it would finance and extend the Orient in the State of Chihuahua northward from Falomir, across the Concho river to within 30 miles of Presidio, Tex., about 46 miles, in reparation for damage done to the railroad elsewhere during the revolution. Late in 1927 some 20 miles of this line remained to be completed.



The Orient in Relation to the Santa Fe

The Orient, in Operation and Under Construction, Is Shown by the Heavy Line, the Sante Fe by the Lighter Lines

In its application to the Commission the Santa Fe points out, in considering the traffic relations of the two companies, that the natural flow of traffic is from the Orient to the Santa Fe. Not to exceed five per cent of the total traffic involved is competitive, the application states. The Orient parallels and competes with the

Santa Fe only between Wichita, Kan., and Cherokee, Okla., and interchanges with it a large volume of freight at junction points—Wichita, Kan., Viola, Harper and Anthony, Cherokee, Okla., and Sweetwater, Tex.

The history of the Orient, ever since the inception of the project, has been a tale of deficits and receiverships. Construction was started on July 4, 1900, and by 1902, 80 miles of line was in operation in the United States and 150 miles in Mexico. Construction was vigorously pushed from that time until 1912 when the railroad reached its present physical state. For 14 years, from 1909 to 1923, operations showed a deficit, but in 1923 net revenue from railway operation totaled $192,019, as compared with an operating deficit of $136,949 in 1922. In 1924, net income increased to $717,923, it dropped to $132,100 in 1925 and again rose to $763,502 in 1926. The earnings since March 31, 1925, have been augmented by the order of the Interstate Commerce Commission requiring its connections to allow it larger divisions of through rates. In 1922 the revenue traffic aggregated 169,135,887 ton miles; in 1923 it rose to 244,368,199 ton miles and by 1926 it had increased to 353,835,000 ton miles.

In 1923 the net revenues were made possible by drastic retrenchment, but in succeeding years they reflect a change in traffic conditions on the Orient, at least on the lines in Texas. The reason for the doubling of the ton-miles handled in four years and the consequent improvement in revenues is found in the one word "oil." The oil traffic from new wells in southern Texas has swelled the tonnage of the Orient and the business of hauling pipe, machinery and other supplies to these fields has added to the total.

In May, 1923, drilling operations at Big Lake, about 75 miles west of San Angelo, Tex., brought in the Big Lake oil field in Reagan county. Other wells were brought in west of the first field, in Crane and Upton counties, all within handling distance of the Orient line. This portion of the railroad from San Angelo to Alpine, which previously had difficulty in finding enough traffic for one or two trains in each direction per week was now faced almost overnight with the problem of providing facilities capable of giving the service the oil traffic demanded.

In 1922 the K. C., M. & O. of Texas hauled 1,924 tons of crude petroleum, none of which it originated. The following year this traffic rose to 3,672 tons, of which 1,965 tons originated on the line. In 1924 the Texas lines handled 95,025 tons of oil, originating 82,600 tons; in 1925 they handled 526,404 tons, originating 525,626 tons; and in 1927 this had increased to 1,406,184 tons, all but 1,426 tons of which originated on the Orient. The increase in business due to the oil traffic can be credited entirely to the Texas lines since the Oklahoma and Kansas lines originated only 31 tons of crude petroleum in 1927. Whereas in 1922 crude petroleum represented less than 0.2 per cent of the total tonnage, in 1927 it amounted to 38.6 per cent of the total. The increased oil business is also reflected in the I. C. C. commodity classification "Bar and sheet iron, structural iron, and iron pipe" of which the Orient handled 46,462 tons in 1922 and 236,223 tons in 1927 while "Refined petroleum and its products" increased from 81,908 tons in 1922 to 404,141 in 1927. Agricultural products, on the other hand, showed only a normal growth in tonnage, the volume increasing from 387,539 tons in 1922 to 543,728 tons in 1927, while the tonnage from animals and their products increased from 101,340 tons in 1922 to 173,817 tons in 1927.

The Kansas City, Mexico & Orient was sold under foreclosure early in 1924 and court approval of the reorganization plan was finally given in 1928, placing the Santa Fe in a position to negotiate for its purchase. In its application to the commission the Santa Fe states that it is the owner of subscription rights to 14,561 shares of the capital stock—out of a total of 35,000 shares of such stock, of which it asks to be allowed to purchase all or a majority.

The consideration to be paid is $414.50 per share of stock—which has not yet been actually issued. The estimated value, the application states, "represents a free meeting of the minds of the sellers and buyer as to the fair price and represents also a value for the physical property of $14,000 per mile (including the mileage of lines in Mexico), after taking into consideration the excess of current assets over current liabilities and all indebtedness of the carrier. This price is much less than the cost of building the railroad originally and less than one-half of what it would cost today to build the railroad, without taking into consideration its rolling stock."

The stock rights which the Santa Fe now owns cover about 40 per cent of the Orient stock and were purchased from the English Noteholders' Committee. The Sante Fe proposes to purchase rights to subscribe to the remaining 60 per cent of stock from W. T. Kemper, president of the Orient, and his associates.

In a hearing before the commission in 1924 attorneys for the Orient pointed out that the only possible solution of its problems were abandonment, consolidation or refinancing. The first of these could not be considered, they contended, because of the communities which the railroad serves and the third was said to be impracticable.

From the standpoint of the Orient, consolidation with the Santa Fe offers a satisfactory solution of its problem.

* * *

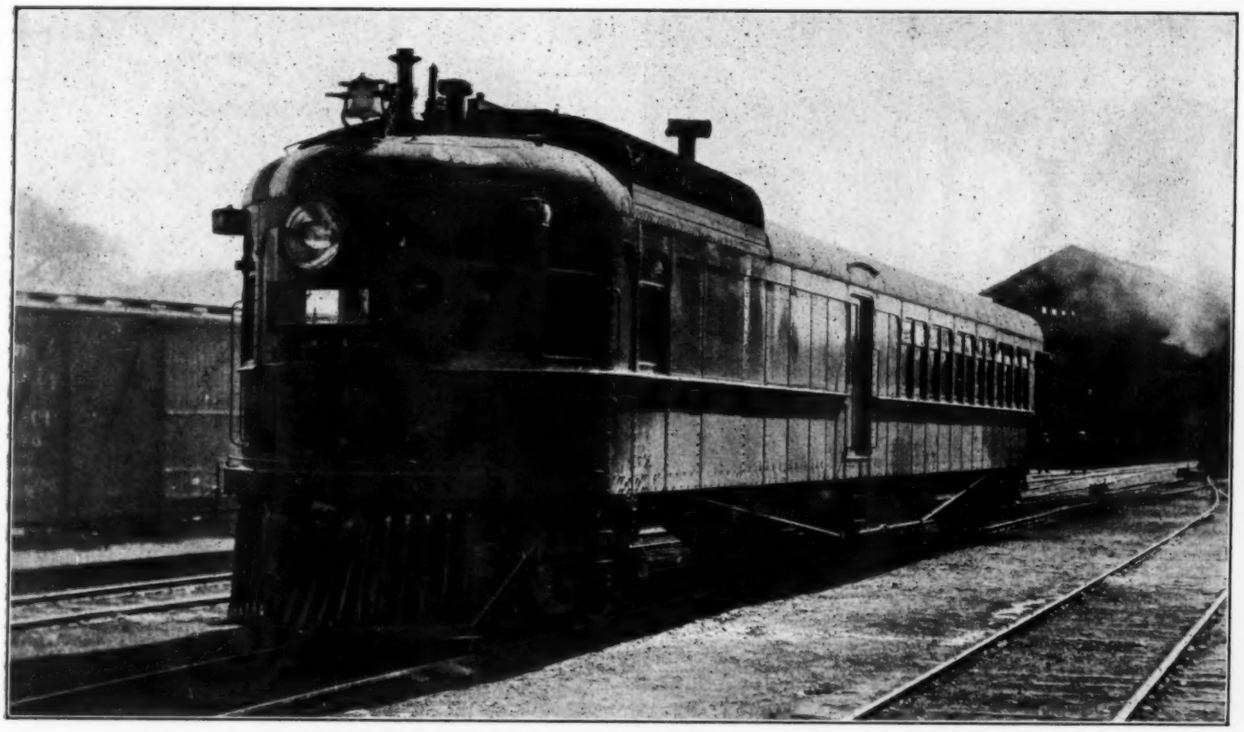
Photo by H. Armstrong Roberts

Milwaukee Tests Diesel Rail Car

Is first car to be driven by American-built Foos engine —Electric transmission used

IN October, 1927, the Chicago, Milwaukee, St. Paul & Pacific placed in service for test purposes between Monticello, Iowa and Calmar, what is probably the first all-American Diesel-electric rail car to be used in this country. The power plant consists of a six-cylinder Diesel engine, built by the Foos Gas Engine Company, Springfield, Ohio, direct-connected to a General Electric generator which furnishes current for two driving motors mounted on the front truck.

This car is one of a number of 70-ft. gas-electric rail cars, built for the Milwaukee in 1912, in which the original eight-cylinder gasoline engine prime mover has been replaced by a modern Diesel engine of the four-cycle, single-acting, solid-injection type, having six 8½-in. by 11-in. cylinders, and being designed for an operating speed range of 400 to 800 r.p.m. In order to avoid overloading the present generator, the engine in this particular installation is limited to 550 r.p.m., at which speed it develops 200 brake horsepower, with a mean effective pressure of 70 lb. The fuel used is known as Diesel engine oil, of approximately 24.3 deg. Baume and 19,000 B.t.u. per lb., costing from five to six cents a gallon.



Exterior View of Diesel-Electric Car Under Test on the Chicago, Milwaukee, St. Paul & Pacific

Good Fuel Performance Secured

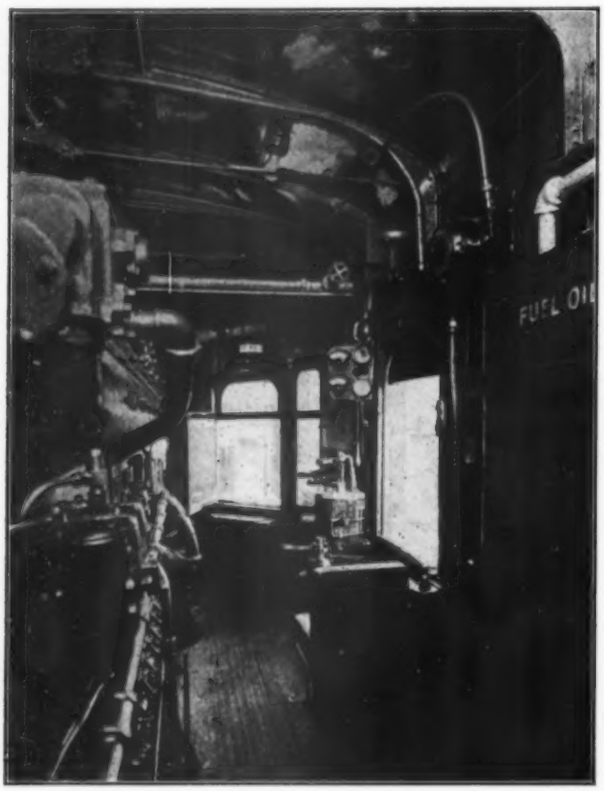
The operation of this rail car, from the standpoint of fuel economy, has to date been gratifying, as the 300-mile daily turn-around trip between Monticello and Calmar, involving a total of 32 stops, has been made in single-car operation, burning a total of 38 gal. of fuel, or at the rate of 5.26 miles a gallon. When handling a trailer unit weighing approximately 33 tons, the fuel consumption increases to about 3.6 miles a gallon. In actual running, it is found possible to shut down the Diesel engine when coasting on hills or into stations and while standing at stations, which materially adds to the economy of operation. Moreover, vibration is eliminated when the car is at rest.

The engine room occupies 15 ft. 8 in. and the baggage room practically 18 ft. in the forward end of the original car body, which is of the closed-vestibule rear-entrance type, having a seating capacity for 43 passengers in the passenger and smoking compartments. Fully loaded with fuel, water and supplies, the car weighs 125,240 lb. The baggage and engine rooms are separated by a steel partition fitted with a central door.

The Foos engine, mounted on the center line of the car with the direct-connected generator located at the forward end, has a one-piece main cylinder frame casting with large cover plates on both sides to give complete access to the main and crank bearings. The crank shaft, also of one-piece design, is forged of open-hearth steel and drilled to carry lubricating oil under pressure to all main and crank-pin bearings. From the crank-pin boxes, lubricating oil is forced up the connecting rods to the piston pins through steel tubing. Pistons are of the steel-band nickel-alloy type. Cylinders, in the form of removable liners, are machined all over, ground inside and turned outside, this uniform thickness of metal tending to promote equal and even dis-

tribution of heat through the walls to the cooling water.

The cylinder heads are removable without disturbing the air inlet or exhaust manifold. Each head is provided with symmetrically-located duel inlet and exhaust valves, a central fuel injection spray valve, a starting air valve, a release valve and an indicator opening. The object of using dual inlet and exhaust valves is to provide maximum gas passages with minimum valve lift, promoting unusually quiet valve operation. This design also permits effective cooling, all valves being water-cooled.



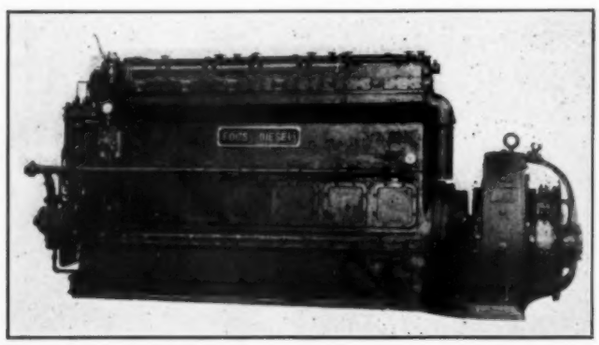
Interior View Looking Forward Toward the Operator's Station

The camshaft is located at the level of the cylinder heads, being supported by removable interchangeable bearings fitted with bronze liners. The inlet and exhaust valve cams are of the constant-acceleration type, designed to promote quiet valve action. All camshaft bearings are under pressure feed from the central lubricating oil system. The camshaft is driven from the crank shaft by a heavy link-belt silent chain.

Fuel Injection System

A solid or mechanical fuel injection system is employed. Measuring and injection of the fuel oil is accomplished in a single constant-volume pump (individual pump for each cylinder in the same pump body), driven directly from the crank shaft by a heavy silent chain and supplying a measured quantity of fuel through a tube directly to the automatic spray valve in each cylinder head. This spray valve is adjustably spring-loaded to give the proper pressure for fuel injection which varies from 2,800 lb. to 3,000 lb. per sq. in. A gear pump, under the control of a fly-ball governor, delivers the fuel from a 150-gal. tank under the car to the high pressure pump system on the engine, the excess fuel of each delivery stroke being by-passed to storage tanks in the engine room. The piping is so arranged that the latter tanks may be cut into the fuel system as a reserve should occasion require.

For starting the engine, air at 200 lb. to 250 lb. pressure is delivered from reservoirs under the car to a distributor on the camshaft assembly and thence to the starting valve in each cylinder head. This valve permits entrance of starting air to the cylinder only when the air pressure is greater than the cylinder pressure. With this system, the fuel valves are open in starting and regular ignition and combustion may be taken up in each cylinder on the first stroke.

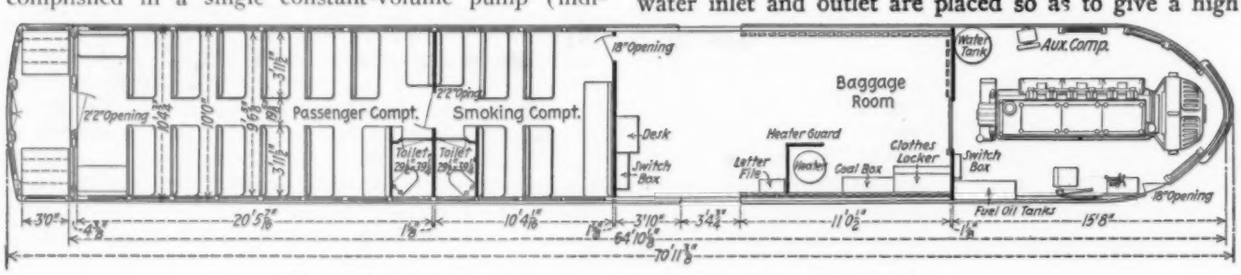


Foos Diesel Engine and General Unit

Air for starting is provided by an air compressor which is an integral part of the Diesel engine and which also supplies air for the air brake and signal systems through the medium of a reducing valve. An auxiliary air compressor has also been provided in the engine room, should it become necessary to recharge the starting reservoirs or should the air compressor fail while the engine is in service.

Adequate Cooling Provided

In this installation, the original water-cooling system was retained except for a rearrangement of piping to permit using sections of the radiator units on the roof as needed to maintain the proper temperature for efficient engine operation. Considering the over-all dimensions of the cylinder frame and the size of the heads, the cooling system is unusually large. The space about the liners provides for a substantial water volume as the cooling area extends far down the liner. The water inlet and outlet are placed so as to give a high



Floor Plan of the C. M. St. P. & P. Diesel-Electric Rail Car

velocity at the upper end of the liner where heat conditions require thorough cooling.

Equipment in the engine room is arranged so as not to interfere with a view forward through large windows on either side. Directly in front of the operator's position on the right side is a control panel on which electrical meters and air brake gage are mounted. Beneath are the controller handle and engine throttle lever, with the air brake valve mounted on a bracket at the operator's left hand. A pyrometer over the right forward window is connected through a multiple switch to a thermo-couple in each cylinder exhaust to make possible a proper power balance in the engine at all times. This is accomplished by making it possible, through the medium of the pyrometer, for the operator to know the exact temperature of the exhaust gases from each cylinder at any time. If one cylinder were showing an exhaust temperature considerably lower than the others it would indicate that this particular cylinder was not doing its full share of the work. The pyrometer permits the operator to know which cylinder requires an adjustment of the fuel valves and, this accomplished, a balance of power is obtained. Other equipment in the engine room includes the fuel oil storage tanks mounted against the wall on the right side, a water tank on the left side which affords ample reserve capacity for the cooling system and in front of this tank, the auxiliary air compressor which maintains starting air pressure in two high-pressure air receivers suspended beneath the car.

Union Pacific Completes Grand Canyon Tourist Lodge

THE Union Pacific, in connection with the national parks circle motor coach tours operated by its subsidiary, the Utah Parks Company, in southern Utah and northern Arizona, has opened its first permanent tourist facilities in Grand Canyon National Park at Bright Angel Point, Ariz., on the north rim of the Grand Canyon of the Colorado. At this point the railroad has erected a central pavilion, which is known as "Grand Canyon Lodge," individual guest lodges, power and pumping plants, a garage and necessary service buildings. Bright Angel Point is more than 200 miles by highway from the end of the rail line on the Los Angeles & Salt Lake at Cedar City, Utah.

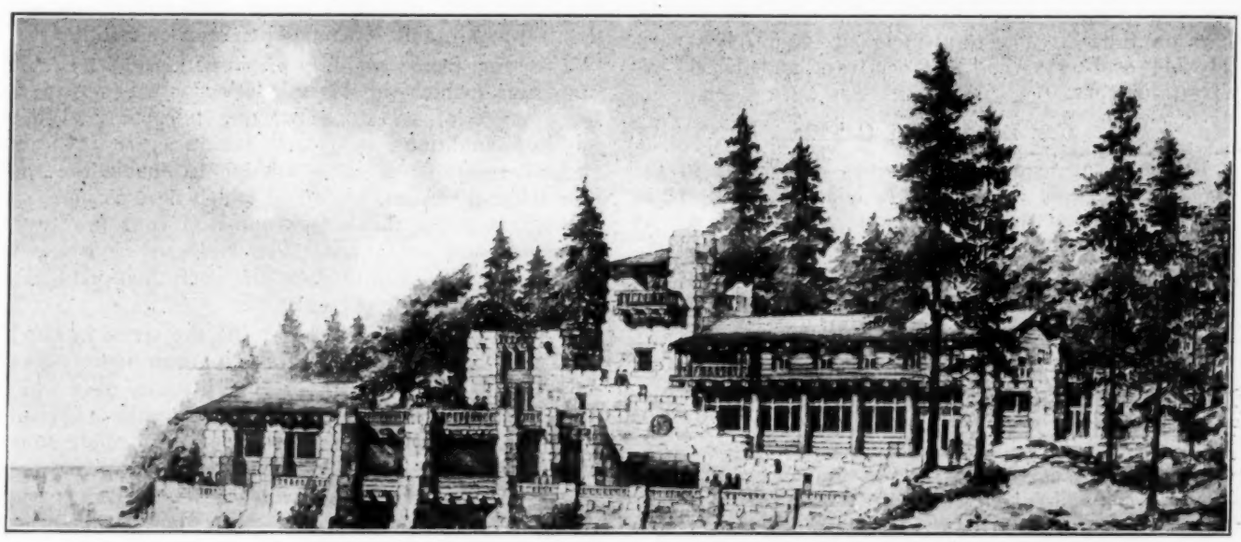
This central pavilion was located on the edge of the plateau in order to give tourists the best possible view of the canyon and the river nearly 4,000 ft. below. No sleeping accommodations are provided in the central pavilion, but approximately 70 log lodges, each containing two rooms and capable of housing four persons, are grouped near the main lodge and back from the canyon's edge. Five of the individual lodges are fitted with private baths and toilets, fireplaces, porches and additional furnishings not provided in the smaller cabins.

The main lodge has been constructed with the idea of doing everything possible to make it harmonize with its surroundings. On the edge of the cliff, wherever possible, natural stone pylons, the result of erosion, have been built up with irregular stone masonry to form columns in the outside walls. The effect of making the building an integral part of its surroundings has been heightened by the use of native sandstone and rough-hewn yellow pine timbers from the Kaibab forest nearby.

Entrance to the lodge is gained from the forest or plateau side with a roofed terrace adjoining a semi-circular drive way. This terrace leads to the lobby and the lounge is immediately beyond, with three large windows affording a view of the canyon. On either side of the lobby, and ranged back from the edge of the cliff along the drive way, are a dining hall designed to seat 200 persons, a kitchen, a recreation room with stage and fireplace, a curio store and soda fountain, a barber shop and shower bath and toilet facilities for both men and women. On either side of the lounge, which extends out beyond the main building as a wing, are two terraces, on one of which 500 people may stand at one time. This larger terrace is provided with a fire-place for evening gatherings. An observation tower, two and three stories high, has been built above the central portion of the building, above the lobby. It is equipped with telescopes and binoculars.

The interior of the lodge is finished in a simple, yet luxurious style harmonizing with the exterior. Furnishings are for the most part of the rustic type, except in the lounge where a vivid color scheme, reminiscent of the hues of the Grand Canyon, has been added.

For water and power the railroad constructed a hydro-electric plant on Bright Angel Creek, 3,800 ft. below



Union Pacific Grand Canyon Lodge at Bright Angel Point, Ariz.

the lodge, which generates the power to pump the water supply and to supply electricity to light the entire set of buildings.

The complete facilities at Bright Angel Point represent an expenditure of about $550,000. Their completion now provides the railroad with tourist accommodations at all overnight stopping points on the Southern Utah-Northern Arizona motor coach tour. The railroad has also constructed luncheon pavilions at Cedar Breaks, Utah, and Kaibab.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading amounted to 986,789 cars during the week ended June 23, a decrease of 16,503 cars from the preceding week and of 31,271 and 68,573 cars respectively as compared with loading in the corresponding weeks of 1927 and 1926. Loading of forest products only was larger than in the corresponding week of last year, with coal leading the decline in other commodity classification totals. Loading in all districts, with the exception of the Southwestern, was smaller than a year ago. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week Ended Saturday, June 23, 1928

Districts	1928	1927	1926
Eastern	225,914	235,771	245,948
Allegheny	204,565	209,766	216,491
Pocahontas	53,062	59,806	59,026
Southern	140,440	146,756	149,094
Northwestern	157,151	161,975	163,943
Central Western	134,465	137,059	145,708
Southwestern	71,192	66,927	75,152
Total Western Districts	362,808	365,961	384,803
Total All Roads	986,789	1,018,060	1,055,362
Commodities			
Grain and Grain Products	33,340	40,791	42,896
Live Stock	24,362	27,083	26,624
Coal	144,892	156,389	180,052
Coke	9,397	10,389	11,485
Forest Products	67,543	66,971	74,316
Ore	65,528	66,263	71,195
Merchandise L.C.L.	256,383	257,666	257,274
Miscellaneous	385,344	392,508	391,520
June 23	986,789	1,018,060	1,055,362
June 16	1,003,292	1,016,479	1,036,643
June 9	995,960	1,028,367	1,052,471
June 2	934,214	911,510	944,864
May 26	1,020,916	1,026,789	1,080,786
Cumulative total, 25 weeks	23,454,056	24,499,602	24,267,591

The freight car surplus averaged 327,499 cars during the period ended June 15, as compared with 318,370 cars on June 8. The total included 163,577 box cars, 110,744 coal cars, 26,139 stock cars and 17,683 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada in the week ended June 23 totalled 67,803 cars, a decrease from the previous week of 572 cars and an increase of 3,464 cars over the same week last year.

	Total Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada		
June 23, 1928	67,803	36,385
June 16, 1928	68,375	37,091
June 9, 1928	66,384	37,247
June 25, 1927	64,339	36,931
Cumulative Totals for Canada		
June 23, 1928	1,596,294	991,394
June 25, 1927	1,517,582	968,568
June 26, 1926	1,428,708	935,353

FRANK H. BRADFORD, supervisor of fire protection of the Boston & Maine, has been put in charge of the safety work in all departments of the road, with the title of safety agent. He continues to have supervision over fire protection.

Train Speeds and Non-Stop Runs

TABLES are presented on the next page showing the fastest schedules (Table 1) and the longest non-stop runs (Table 2) of some of the larger railroads. The list is not complete, but is sufficiently so to be representative, since all but eight of the systems which include the official category of "large steam roads" are represented, as is one of the two principal Canadian lines.

The figures are not, nor are they intended to be, comparable. Among the reasons for this lack of comparability are the fact that some roads have short runs with high density of traffic and no great obstacles to fast movement; while others have longer runs, thinner traffic and interference from freight traffic and physical conditions. Evidence of this fact is given by the two situations in the country where speeds of more than 60 m.p.h. are maintained from terminal to terminal. These are the seashore services of the Pennsylvania and the Reading between Camden, N. J., and Atlantic City. Here the conditions are ideal for high speed schedules; short distance, level country, high traffic density, absence of important intermediate stations, and minimum interference from freight traffic. The fact that no other terminal to terminal speeds are shown to equal these is undoubtedly due to the fact that nowhere else in the country are these factors favorable to high speeds to the same degree.

There is still another factor, in addition to those mentioned above, which militates against the making of any fair comparisons as between roads, i.e., unequal distance between the terminals. For instance, of two roads competing on a relatively even basis as to schedules, the road having slightly the longer line will manifestly have to operate at slightly higher speed than the other in order to maintain the same schedule. Other things being equal also, a line with limited track capacity which derives hardly more than 10 per cent of its revenue from passenger traffic will scarcely be expected to operate many fast trains interfering seriously with its freight movement. A speed record of 35 miles an hour with a maximum non-stop run of 50 miles on one road might represent a more difficult performance than 60 m.p.h. and 150 miles non-stop on another.

The same incomparability arises with respect to non-stop runs (which, in this tabulation, is taken to mean the absence of *all* stops for any purpose). Where physical conditions and track facilities are favorable and where traffic is dense enough to enable the running of many trains, not all of which need to make intermediate stops, the longer non-stop runs are to be expected—and are found. The tables, therefore, will serve effectively only to show the performance of each road by itself at the present time.

A word of explanation regarding the speed in m.p.h. shown in the fifth column, Table 1—these figures show only highest *scheduled* speeds. The distance over which these fastest schedules are maintained may be: (1) either from start to stop, (2) may include intermediate stops, or (3) may be the scheduled speeds between points where no stops are made—which latter is the situation in both cases where speeds greater than 70 m.p.h. are shown.

TABLE 1—HIGHEST SCHEDULED SPEEDS ON SOME OF THE LARGER RAILROADS

Railroad	Name of Train and Direction	Points Between Which Fastest Speed is Made	Distance (miles)	Speed m.p.h.	Initial and Final Terminals	Speed entire Trip, m.p.h.
Atchison, Topeka & Santa Fe	Antelope W	Olathe, Kan.-Emporia Junc., Kan.	85.4	50.8	Kansas City, Mo.-Cleburne, Tex.	36.8
Atlantic Coast Line	Miamian S	Florence, S. C.-Bennett, S. C.	95.2	44.9	Richmond, Va.-Jacksonville, Fla.	42.3
Baltimore & Ohio	No. 6 E	Rock Island Jct., Ill.-Garrett, Ind.	130.5	52.8	Chicago-Baltimore	41.6
Boston & Maine	Flying Yankee E & W	Boston-Portland, Me.	111	46.1	Boston-Portland, Me.	46.1
Canadian National	International Ltd. W	Coteau, Que.-Brockville, Ont.	87.79	49.7	Montreal-Chicago	37.14
Central of Georgia	Southland E	Griffin, Ga.-Paynes, Ga.	55.3	47.4	Atlanta, Ga.-Macon, Ga.	41.16
Chesapeake & Ohio	No. 42, 44, 46 E	Richmond, Va.-Williamsburg, Va.	48.3	49.97	Richmond, Va.-Ft. Monroe, Va.	39.34
Chicago & Alton	Mail Train No. 79 S	Chicago-St. Louis (6 hrs. 20 min.)	284.06	44.85	Chicago-St. Louis	43.72
Chicago & Eastern Illinois	LaSalle S	Woodland Jct., Ill.-Villa Grove Tower, Ill.	61.3	54.9	Chicago-St. Louis	44.93
Chicago & North Western	Overland Ltd. E	Clinton, Ia.-DeKalb, Ill.	78.4	48.49	Omaha-Chicago	40.58
Chicago, Burlington & Quincy	Chicago Limited	Akron, Colo.-McCook, Nebr.	142.98	45.15	Denver-Chicago	39.55
Chicago Great Western	No. 8 E	St. Paul-Oelwein, Ia.	179.0	41.3	Minneapolis-Kansas City	33.7
Chicago, Indianapolis & Louisville	Tippecanoe W	Monon, Ind.-Hammond, Ind.	67.7	46	Indianapolis-Chicago	39.3
Chicago., Mil., St. Paul & Pacific	No. 59 W	Chicago-Milwaukee	85	48.6	Chicago-Minneapolis	41.4
Chicago, Rock Island & Pacific	No. 23 W	Englewood, Ill.-Bureau, Ill.	107.5	50.79	Chicago-Des Moines	43.63
Delaware & Hudson	No. 308 W	Oneonta, N. Y.-Binghamton, N. Y.	60.8	37.8	Albany, N. Y.-Binghamton, N. Y.	36.3
Delaware, Lackawanna & Western	No. 6 E	Kanona, N. Y.-Avoca, N. Y.	3.66	73.2	Buffalo, N. Y.-Hoboken, N. J.	40.74
Denver & Rio Grande Western	No. 7 W	Grand Junction, Colo.-Green River, Utah	105.6	33.5	Denver-Salt Lake	26.3
Florida East Coast	Miamian S	Melbourne-St. Lucie	44.7	52	Jacksonville-Miami	40
Great Northern	Oriental Ltd. W	Minneapolis-St. Cloud, Minn.	68.25	45.8	St. Paul, Minn.-Tacoma, Wash.	32.35
	No. 27 Mail Train W	Delano, Minn.-Breckenridge, Minn.	176.5	49.7	St. Paul-Seattle	37.7
Illinois Central	Daylight Special S	Kankakee, Ill.-Gilman, Ill.	25.2	56	Chicago-St. Louis	45.1
Lehigh Valley	Black Diamond E	Buffalo-Geneva, N. Y.	103.1	49.3	Buffalo-New York	40
Louisville & Nashville	Pan-American S	Strawberry, Ky.-Lebanon Junction, Ky.	23.9	53.1	Cincinnati-New Orleans	38.6
Minneapolis, St. Paul & S. Ste. Marie	No. 62 E	Webster, Wis.-Boylston, Wis.	55.4	50	Minneapolis-Duluth	35
Missouri-Kansas-Texas	Texas Special E	Vinita, Okla.-Muskogee, Okla.	64.6	48.5	San Antonio-St. Louis	37.4
Missouri Pacific Lines	Scenic Limited E	Horace, Kan.-Hoisington, Kan.	172.0	46.9	Pueblo-St. Louis	39.8
Nashville, Chattanooga & St. Louis	Dixie Limited S	Tullahoma, Tenn.-Murfreesboro, Tenn.	37.64	42	Nashville, Tenn.-Atlanta, Ga.	38.2
New York Central	Twentieth Century Limited E	Butler, Ind.-Holland, O.	61.17	57.14	Chicago-New York	48
New York, New Haven & Hartford	No. 15 & 23 W	Providence, R. I.-New London, Conn.	62.25	51.16	Boston-New York	44.34
Norfolk & Western	No. 19 & 21 W					
	No. 20 & 22 E	Norfolk, Va.-Petersburg, Va.	82.6	45.06	Norfolk-Richmond	42.98
Pennsylvania	No. 1181 S	Hammonton, N. J.-Egg Harbor, N. J.	11.3	75.33	Camden, N. J.-Atlantic City, N. J.	60.4
Reading	No. 10 & 14 N	Atlantic City, N. J.-Camden, N. J.	55.2	60.22	Atlantic City-Camden, N. J.	60.22
Richmond, Fredericksburg & Potom.	No. 23 S	Fredericksburg, Va.-Ashland, Va.	44.6	50.1	Washington-Richmond	45.2
St. Louis-San Francisco	Sunnyland E	Nichols, Mo.-Ash Grove, Mo.	15	50	Birmingham-Kansas City	40
St. Louis Southwestern	Lone Star Limited E & W	Texarkana-Mt. Pleasant, Tex.	60.79	43	Memphis-Ft. Worth	34
Southern Pacific (Pac.)	Sunset Limited W	Yuma, Ariz.-Indio, Cal.	121.8	48.39	El Paso-San Francisco	34.51
So. Pacific Lines (Tex. & La.)	Sunbeam W	Houston, Tex.-Hearne, Tex.	119.4	43.7	Houston-Dallas	40.7
Union Pacific	No. 5 W	North Platte, Neb.-Sidney, Neb.	123.4	46.2	Council Bluffs, Ia.-Granger, Wyo.	41
Wabash	Banner Limited S	Forrest, Ill.-Decatur, Ill.	80.1	47.5	Chicago-St. Louis	45.32
Western Pacific	No. 1 W	Alazon, Nev.-Carlin, Nev.	69.1	42.30	Salt Lake City-San Francisco	34.88

[1] Avg. Speed, Eliminating Stops.
[2] Avg. Speed, Including Stops.

TABLE 2—LONGEST NON-STOP RUNS ON SOME OF THE LARGER RAILROADS

Railroad	Name of Train and Direction	Points Between Which Longest Non-stop Run is Made	Distance (miles)	Speed m.p.h.	Initial and Final Terminals	Speed entire Trip, m.p.h.
Atchison, Topeka & Santa Fe	Chief E	Dodge City, Kan.-Hutchinson, Kan.	120.2	48.0	Los Angeles-Chicago	36.0
Atlantic Coast Line	Miamian N	Jacksonville-Savannah	171.1	43.8	Jacksonville-Richmond	42.4
Baltimore & Ohio	No. 1 W	Martinsburg, W. Va.-Keyser, W. Va.	101.5	46.9	St. Louis, Mo.-Jersey City, N. J.	38.9
Boston & Maine	Flying Yankee E & W	Boston-Portland, Me.	111	46.1	Boston-Portland, Me.	46.1
Central of Georgia	Southland S	Macon, Ga.-Albany, Ga.	106.2	40	Atlanta, Ga.-Albany, Ga.	39.6
Chesapeake & Ohio	Resort Special E	Newport, Ky.-Maysville, Ky.	59.3	45.62	Cincinnati-Washington	34.25
Chicago & Alton	No. 7 S	Chicago-Bloomington, Ill.	126	37.7	Chicago-St. Louis	37.79
Chicago & Eastern Illinois	LaSalle S	Watseka, Ill.-Glover, Ill.	48.4	52.41	Chicago-St. Louis	44.93
Chicago & North Western	Overland Limited E	East Rapids, Ia.-Clinton, Ia.	80.2	47.88	Omaha-Chicago	40.58
Chicago, Burlington & Quincy	North Coast Limited E	Prescott, Wis.-Grand Crossing, Wis.	106.7	42.7	St. Paul-Chicago	39.02
Chicago Great Western	Red Bird E	St. Paul-Rochester, Minn.	108.7	39.9	Minneapolis-Rochester, Minn.	36.5
Chicago, Indianapolis & Louisville	Hoosier E	Hammond, Ind.-Rensselaer, Ind.	52.1	48	Chicago-Indianapolis, Ind.	38.6
Chicago., Mil., St. Paul & Pacific	No. 59 W	Winona, Minn.-St. Paul, Minn.	102	46.5	Chicago-Minneapolis	41.4
Chicago, Rock Island & Pacific	Golden State Limited E	Trenton, Mo.-Eldon, Ia.	121.4	45.27	Los Angeles-Chicago	38.4
Delaware & Hudson	No. 10 S	Whitehall, N. Y.-Troy, N. Y.	77.5	39.2	Montreal-Troy, N. Y.	35.8
Delaware, Lackawanna & Western	No. 6 E	Buffalo-Mt. Morris, N. Y.	62	47.4	Buffalo-Hoboken, N. J.	40.74
Denver & Rio Grande Western	No. 7 W	Grand Junction, Colo.-Green River, Utah	105.6	33.5	Denver, Colo.-Salt Lake	26.3
Great Northern	No. 27 Mail Train W	Williston, N. D.-Glasgow, Mont.	156.44	45.2	St. Paul, Minn.-Seattle, Wash.	37.7
	No. 1 W	Williston, N. D.-Wolf Point, Mont.	106.8	37.7	St. Paul-Tacoma, Wash.	32.35
Illinois Central	Chickasaw N	Memphis-Fulton, Ky.	122.4	52.8	Memphis-St. Louis	40.5
Lehigh Valley	No. 2 E	Buffalo-Geneva, N. Y.	103.1	48.6	Buffalo-New York	40
Louisville & Nashville	Pan-American S	Oakworth, Ala.-Birmingham	82.88	42.6	Cincinnati-New Orleans	38.6
Minneapolis, St. Paul & S. S. Marie	Mountaineer E	New Richmond, Wis.-Owen, Wis.	104.9	37	Chicago-Vancouver	31
Missouri-Kansas-Texas	Texas Special W	Kansas City-Parsons, Kan.	136.0	42.1	Kansas City-Oklahoma City	36.6
Missouri Pacific	Scenic Limited E	Jefferson City, Mo.-Kirkwood, Mo.	111.8	43.0	Pueblo, Colo.-St. Louis	39.8
Nashville, Chattanooga & St. Louis	Dixie Limited N	Cravens, Tenn.-Cowan, Tenn.	62.79	36	Chattanooga-Nashville	37.93
New York Central	Twentieth Century Limited W	Buffalo-Cleveland	181.90	50.70	New York-Chicago	48
New York, New Haven & Hartford	No. 16 & 24 E	New York-New Haven	72.28	44.25	New York-Boston	44.35
Norfolk & Western	Pocahontas W	Williamson, W. Va.-Kenova, W. Va.	74.9	37.3	Norfolk-Cincinnati	32.33
Pennsylvania	Pittsburgher W	Manhattan Transfer, N. J.-Harrisburg, Pa.	181.6	50.81	New York-Pittsburgh	47.11
Reading	No. 10 & 14 N	Atlantic City, N. J.-Camden, N. J.	55.2	60.22	Atlantic City-Camden	60.22
Richmond, Fredericksburg & Potom.	All N. Y.-Fla. Trains, N & S	Richmond, Va.-Fredericksburg, Va.	59.4	45	Richmond-Washington	40
St. Louis-San Francisco	Memphian W	Crystal City, Mo.-Cape Girardeau, Mo.	91.5	42.7	St. Louis-Memphis	39.3
St. Louis Southwestern	Lone Star Limited E & W	Texarkana-Mt. Pleasant, Tex.	60.9	43	Memphis-Ft. Worth	34
Southern Pacific (Pac.)	Daylight E	Watsonville Jct., Calif.-Santa Margarita, Calif.	135.1	45.79	San Francisco-Los Angeles	39.25
So. Pacific Lines (Tex. & La.)	Sunset Limited E	San Antonio-Eagle Lake, Tex.	141	39.3	El Paso-New Orleans	36.6
Union Pacific	No. 5 W	Rawlins, Wyo.-Rock Springs, Wyo.	119.3	42.8	Council Bluffs, Ia.-Granger, Wyo.	41
Wabash	Banner Limited S	Ashburn, Ill.-Forrest, Ill.	80.2	53.5	Chicago-St. Louis	45.32
Western Pacific	No. 1 W	Gerlach, Nev.-Doyle, Calif.	75.4	36	Salt Lake City-San Francisco	34.88

Economies of Car Retarders*

Summary of three years' experience—Details of costs and savings

By Venable Lane Stern

CAR retarders provide the mechanical means for controlling or retarding the movement of cars in hump yards, a long step forward in car classification. Briefly a car retarder is a power-operated rail brake, built into the track, consisting of a number of iron shoes, suitably mounted, and which move with varying pressures, according to the judgment of the operator in such a manner as to grip both sides of the car wheels.

Hump yards in which freight cars are allowed to drift by gravity to the tracks assigned to them, are now common. These yards effect marked economy as compared with switching on level tracks. To further increase economy, power switches have been introduced, both electro-pneumatic and all-electric. With hump switching, however, there are still left the difficulties incident to varied weights of cars and to cold weather; the cost of large crews of brakemen and the risk of injury to these men and damage to freight.

Iron or steel shoes, called skates, have long been in use but have found no favor in this country except as an emergency brake. In Europe where freight cars are very light compared with American cars, these shoes or brakes have been used to considerable extent, being operated both by pneumatic and electric power. They have been introduced in America with the power retarders.

Pneumatic retarders were tried at Gibson, Ind., about twenty years ago, but, because of insufficient flexibility, were not successful. A retarder, called in Europe a track brake, was put in use by Dr. Frolich in Germany in 1920. This presses against the wheels at a point about four inches above the top of the rail. The Frolich rail brake was first employed at Oberhausen, Germany, in 1918. These brakes are now in use at Cologne, Seddin, Schwelgrin, and at several other places. In addition, installations have been made at Aarhus, in Denmark, and at Sustern, in Holland. The most recent and advanced systems are at Hamm, Germany, and at Whitemore, in England, on the London & North Eastern.

The first successful retarder in America was completed in December 1924, at the yard of the New York Central at Gibson, Ind., under the direction of the co-inventors, George Hannauer and E. M. Wilcox, vice-president and master carbuilder, respectively, of the Indiana Harbor Belt Railroad (New York Central System). There are two designs, the electric made by the General Railway Signal Company and the electro-pneumatic made by the Union Switch & Signal Company.

* This article is an abstract of a paper by a student in the graduating class of the Graduate School of Business Administration, Harvard University, who presented it as his graduating thesis. The latest installation of car retarders discussed by Mr. Stern, that at Mechanicville, N. Y., was described and illustrated in the *Railway Age* of February 4, 1928. Other descriptions of retarders in these columns will be found in the issues of November 15, 1924; March 6, 1926; February 26, 1927. The last-mentioned contains an illustrated description of the apparatus for lubricating cars in cold weather with heated oil. The German retarders referred to in this article were described in the *Railway Age*, December 6, 1924, and October 24, 1925.

Retarders at Gibson, the First Installed

In general, the first retarder is placed near the summit of the hump and the others are placed at intervals along the lead and on each classification track. The operators in the towers set the switches, regulate the speed of descending cars by the retarders and, in case of necessity, use the power operated skate, which is located beyond the last retarder on each classification track. The operator is supplied with switch lists for each train before beginning the distribution of cars. Loud speaking telephones are provided for all necessary communication between towers and between towers and yard conductors. At the Gibson yard, the grade off the hump is three per cent for 150 ft.; one per cent for 100 ft.; four per cent for 100 ft.; one per cent for 250 ft. (in which space is the first switch) and 0.4 per cent into the yard. Experience at this first installation resulted in the following summary of economies:

(1) All car riders have been dispensed with; (2) cars are spaced more evenly and closely with a consequent potential increase in yard capacity; (3) better control of cars on the grades prevents rough handling and damage claims; (4) the use of an outside braking medium obviates the necessity of preliminary tests of the brakes on the cars; (5) elimination of car riders promotes safety; (6) the provision of a mechanical device for placing skates on the rails at the will of the tower operators removes danger from this operation; (7) peak traffic can be handled without the necessity of hiring and training additional men with consequent inefficiency (formerly, the number of cars that could be classified was sometimes limited by the number of riders on the job); (8) operation in winter is not interfered with; (9) a better class of men can be employed inasmuch as the night car riders' job was most hazardous and disagreeable, and hence was assigned to new or inefficient men; (10) expenses of cleaning the yard have been reduced; (11) car damage has been lessened; (12) freight damage claims have been cut down; (13) the humping capacity has been increased.

A statement of savings is given in Appendix B. The rapid development of retarders since the Gibson installation is indicated by Appendix A showing the locations of the plants since installed. At Mechanicville important improvements in arrangement of tracks was introduced. The retarder has now been developed to the point where it may be said that the manufacturers have eliminated most of the original defects and the railroads have determined the proper grades and track layouts. At Mechanicville the grade of the hump is four per cent for 50 ft.; then two per cent for 75 ft.; in which space there are two retarders each 33 ft. long and then for 290 ft. the grade is 1.2 per cent with a retarder in the rear of each group switch. (See Mechanicville description.)

Cost and Economics

The savings realized up to the present time fall into three classes: those resulting from a reduction in labor;

other tangible savings; and miscellaneous economies.

The first class is the largest and the most important inasmuch as these savings can be determined fairly accurately. The greatest saving comes from the elimination of all car riders. This amounted, in the case of the Gibson yard, where only 1500 cars are classified daily, to $8,000 in one month (see Appendix B). Another absolute saving in wages arises from the abolition of rider-cars (to carry the brakemen back to the starting point) that must have operators. Switchtender hours are also reduced or eliminated, but this item cannot be credited to retarders alone, inasmuch as power-operated switches are used without retarders. However, added efficiency and economy in their utilization results when used with retarders. Brake testers are reduced in number with a consequent decrease in labor expense.

There are other reductions in pay roll which are due to the speeding up of operations. These include such items as yard-conductor-hours, yard-engine-crew-hours, yard-clerk-hours, etc. Offsetting these to a slight degree is the cost of tower operators. The total reduction in pay roll at the Mechanicville yard, as shown in Appendix C was approximately 50 per cent. It is in cost of labor that the chief economies from retarder operation are to be realized, and the test of whether an installation would be justified comes at this point. Is the labor force sufficiently large for a substantial reduction?

The second class has to do with tangible savings in operation, other than labor costs. The chief of these is the reduction in engine-hours, made possible by faster and more continuous humping, which saves fuel, repairs, and hostling expenses. There is also less extra switching because of the fact that "no brake" cars can be humped together with "OK" cars. The next largest reduction comes from the increased utilization of cars—i. e., less time spent in yards. This saves per diem or interest charges. The Boston & Maine calculated a saving of about $6,000 in one month in this item alone Rider-cars are eliminated, saving in investment, and in maintenance and operation of such cars. The total motive power required for yard operation is reduced, with a resulting decrease in carrying charges. Another economy is realized from the reduction in yard cleaning (less spilling of car contents because of smoother and better controlled operation). Again, there is a substantial saving because of less damage to cars and their contents, a result of better handling of cars. The Boston & Maine has estimated these savings as being about $250 per week at Mechanicville, which handles less than 1,000 cars a day.

The third class consists of intangible, miscellaneous factors that are important and advantageous, but whose value cannot be judged with satisfactory accuracy. These also vary in different yards with different operating characteristics. One factor concerns yard capacity. Cars can be spaced more evenly and closer together by means of retarders, with a consequent increase in potential capacity. Also, the full capacity of the yard is available at all times. This reduces congestion and saves the delay necessary for procuring additional riders under the old method of operation. Humping capacity also is increased because of the faster operation. It is estimated that humping capacity has been increased 50 per cent at the Selkirk Yard of the New York Central. A large intangible item is the reduction of risk to the workmen, with consequent possible monetary savings, better morale, increase in efficiency, which means that a better class of men can be employed. Further, weather variations have no effect on operations as was formerly the case. The use of retarders has also proved the feasibility of hump yard operation where there are less than 2000 cars a day, on the average, to be classified. Both the East St. Louis yard and the Mechanicville yard handle less than 1000 a day, and are considered to be profitable. Last, there enters in the factor of increased good will on the part of shippers because of faster service, with less damage to contents.

From the above it is seen that the use of retarders has brought out the possibilities of economies in various factors, only a few of which are certain, definite, and capable of being measured. This, coupled with the fact that there are very few comparable figures available at this early date, precludes the possibility of determining the complete and accurate economic justification of retarders. However, it is clear that, from an analysis of the two yards given in Appendices B and C, there is a sufficiently large and determinable saving from *operation alone*, without bringing in the intangibles, to yield an ample return on the investments in the yards studied. The per cents saved on the total investments of five of the fourteen yards equipped are given in Appendix E. After allowing for interest, depreciation, etc., there will still be a margin of profit large enough to pay for the installations in those particular yards in a few years, provided all expenses of the retarders, direct and otherwise have been properly allowed for in arriving at the figures. Therefore, from the viewpoint of operating efficiency and economy, the above installations were justified. The chief difficulties seem to lie in the initial cost, in the large number of retarders and accessory equipment required, the maintenance and operating costs, and the probability of obsolescence with the perfecting of the technical details.

Auxiliary Services

Certain features of equipment and construction and principles of layout and operation have come to the front with the development of the car retarder. 1. Mechanically thrown track skates, stopping a car that has gotten beyond the control of the last retarder. It is the final emergency brake, and is operated by the towerman. 2. Teletype machines to send switch lists from the yard office to the hump and to each tower simultaneously. These save time and labor, and improve accuracy. 3. Pneumatic tubes are also used to get bills and reports to and from the yard office and the receiving and departure tracks. 4. Good lighting is necessary to enable the towerman to see where each car is before it reaches its proper classification track so as to judge its rate of speed. 5. The arrangement of the lead tracks at the head of the yard has changed from the old ladder type arrangement. The layout now is balloon-shaped, so as to send the cars over diverging routes at the earliest possible moment, and to get them to clear on the classification tracks with the minimum of travel. 6. Hump signals. The towerman must be able to control the movement over the hump so as to better coordinate the movements of cuts into the classification tracks. 7. Heating the journals of the cars by the use of hot oil just before the car goes over the hump, which enables the wheels to run easily and uniformly as in mild weather.

Problems of Design

One of the chief problems brought out by the use of retarders is that of acceleration. This must now be determined with accuracy to give the maximum efficiency and economy. This question brings in the effect of curvature on speed, the braking power required to stop a car, the grade on which a car would stop, and the

neutral grade on which a free running car would continue to run without accelerating.

It is desirable that cars will never need to move at high speeds, but will maintain a speed of 6 m. p. h. down the hump and along the leads. This is accomplished by making the accelerating grade of the hump as short as possible, and by carrying an ample accelerating grade into the ladders. There are several reasons for this. First, the rate of acceleration is greater at slow than at high speeds; also there is less waste of energy with uniform speeds, both of which result in a more economical use of the total difference in elevation between the summit of the hump and the yard tracks. Second, there is a limit to the braking effectiveness of a retarder unit. Third, fewer retarder units will be required and the initial cost for installation will be reduced. Fourth, because the braking power required to stop a car increases in proportion to the square of the speed, less power will be used, the brake shoes will last longer, with a resulting saving in maintenance expenses. Fifth, there is less danger of accidents, and cars will not cause serious damage or delay should they collide or get off the track.

In view of the above facts, a design for a new yard to be equipped with car retarders, as suggested by the American Railway Engineering Association, is, in general, as follows. The hump incline should be short with a grade of approximately 4 per cent for a distance of about 35 ft, to give the car a quick break-away. There should then be two retarder units occupying a space of approximately 70 ft. on a 2 per cent grade, after which the leads for yard tracks may begin. On the ladder and through the switches the gradient should vary between 1 per cent and 1.2 per cent, depending on the local conditions and the character of the cars to be handled. Curves should be compensated for at the rate of 0.03 per cent per degree of curve. On classification tracks, beginning at the heel of the frog, an 0.8 per cent grade is recommended for a distance of about 40 ft., after which the gradient should be 0.3 per cent. The last retarder should be located on each yard track where the 0.3 per cent grade begins. The departure end of the classification tracks should have a short opposing grade to prevent cars from running beyond the clearance point of the out-going switches.

In conclusion it may be said that the car retarder has already very successfully demonstrated the justification for its existence. There is a limit to its practicability, of course, depending upon the cost of installation, the size of the yard, the amount of traffic, the available layout, and the economies that are possible from its operation in particular instances.

Appendix "B"—Comparison of Costs by Hand Braking and by Car Retarders

Gibson Yard—Indiana Harbor Belt Railroad.—Month of February: Hand braking in 1924; Retarders in 1925.

Items	Quantities 1924	Quantities 1925	Costs (cents omitted) 1924	Costs (cents omitted) 1925
Cars humped	42,534	45,282		
Average number per day	1,467	1,617		
Engine hours	1,840	1,338	$19,320	$14,049
Conductor hours	696	648	577	537
Switchmen hours	14,192	2,787	10,927	2,145
Switchtender hours (including car riders)	3,480		2,053	
Brake tester hours	58		400	
Retarder operator hours		3,360		3,124
Messenger service hours		280		122
Maintenance of plant				1,758
Power for plant				1,124
Personal injuries			2,263	55
Total Costs			$35,541	$22,918
Average cost per car humped, cents			83.5	50.6
Average savings per car, cents				32.9
Savings, 1925 over 1924				$14,898

Appendix "C"—Savings Realized from Installation of Retarders

Mechanicville, Boston & Maine, Eight Weeks Period—January and February, 1927 and 1928.

	1927	1928
Cars received	50,193	51,293
Pay roll	$56,621	$30,963
Labor cost per car, cents	128	60.4
Saving per car for labor, cents		67.6
Total saving in pay roll		$25,660
Engine expenses saved: (Fuel, $4,355; Repairs, $3,151; Hostling, $887)		8,393
Savings from increased utilization of cars: 3 hours less time per car in the yard; 3 hours × number of cars at $1 per day		6,155
Decrease in damages, $250 per week		2,000
Total Gross operating savings, 8 weeks		$42,908
Total Gross Estimated operating savings, 1 year		257,448
Deduct: Maintenance of retarding plant, $32,496; Power for plant, $15,000		47,496
Net Operating Savings per Annum		$209,952

Appendix "D"—Costs of Installation at Mechanicville

Revising layout and Regrading		$275,000
Retarders:		
17 retarders, totaling 577 ft. at $250 per ft.	$144,250	
35 switch points at $2,000	70,000	
Power house	14,600	228,850
Total Investment		$503,850
Saved on investment: $209,952 on $503,850 (per cent)		42
Savings from revised layout and grades alone, estimated at 26 per cent of that investment		$70,500
Savings from retarders alone: ($209,952 — 70,500)		$139,452
Saved on retarder investment (per cent)		60

Note: These figures do not take into account interest, depreciation, insurance, etc. However, savings of 60% or 42% are sufficient to allow large profits after the deduction of such items.

Appendix "E"—Per Cent Saved on Total Investments

Mechanicville	42 per cent
Gibson	39 per cent
Blue Island	36 per cent
Hartford	25 per cent
East Saint Louis	12 per cent

Figures include only operating savings. Depreciation and carrying charges are not available.

Appendix "A"—Car Retarders on American Railroads

Date	Road	Location	No. of Class. Tracks	Capacity of Class. Tracks	Av'g Cars Per Day	Towers	No. of Retarders	Rail Ft. of Retarders	No. of Power Switches	No. of Power Skates	Manufacturer
Dec. 1, 1924	Indiana Harbor Belt	Gibson, Ind.	29			5	51	2,708			
Feb. 8, 1926	Illinois Central	East St. Louis	26	1,975	1,000	4	53		27	26	G. R. S.
Mar. 8, 1926	Illinois Central	Markham, Ill.	79	2,570		5	121	7,072	69	65	Union
Mar. 15, 1926	Illinois Central	Markham, Ill.	43			4	52				G. R. S.
Mar. 15, 1926	New York, N. H. & H.	Hartford, Conn.	19	900		2					G. R. S.
Aug. 13, 1926	Indiana Harbor Belt	Blue Island, Ill.	30		2,500	5	51		29		G. R. S.
Aug. 13, 1926	Indiana Harbor Belt	Gibson, Ind.	33			2					
Sept. 26, 1927	Boston & Maine	Mystic Junction	25		1,100	2	16	1,232	28	0	Union
Sept. 26, 1927	Boston & Maine	Mystic Junction	30		1,000	2	15	1,100	30	0	Union
Nov. 22, 1927	Central of New Jersey	Allentown, Pa.	24	1,200	1,200	3	20	1,305	23	24	Union
Jan. 14, 1927	Boston & Maine	Mechanicville, N. Y.	36	1,930	850	2	17	1,287	35	0	G. R. S.
Jan. 16, 1927	New York Central	Selkirk, N. Y.	25	1,857	1,700	3	33	2,194	25	12	G. R. S.
Jan. 24, 1927	Norfolk & Western	Portsmouth, Ohio	36	1,300	4,000	3	34	2,053	44	37	Union

* There is also an installation at the Commonwealth Edison Company of Chicago and a system is being installed at Fort Worth, Texas.

Rock Island Has Good Year

Increased traffic and operating economies from judicious capital expenditures make 1927 best in history

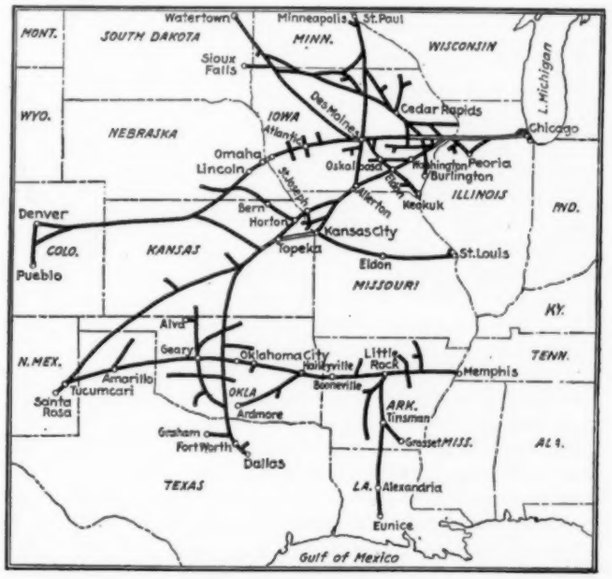
THE record of the Rock Island since the end of federal control has, except for the period of the post-war depression and that of the shop strike, been a crescendo of increasing traffic, improving efficiency and higher earnings—with 1927 showing the highest net return in the history of the property and being marked also by the resumption of dividends on the common stock, the first paid since the reorganization of the company in 1917.

From an earnings standpoint, expansion in the production of oil in its territory has been the most fruitful source of increased traffic to the Rock Island. Total tons carried in 1927 reached a figure of 34,335,161, as against 30,561,383 in 1924. In the same period there was an increase from 160,468 to 1,645,888, or 1025 per cent, in the tonnage of crude petroleum handled and an increase of almost 1,000,000 tons in petroleum products. The tonnage of bar, sheet and structural iron and iron pipe mounted 100 per cent, to 951,727 tons, reflecting activity in oil development and in the construction industry. Development in the latter also brought about an increase of almost a million tons in the three-year period in the volume of clay, gravel, sand and stone. Other building materials registered substantial increases. Meantime, products of agriculture totaled but 6,998,395 tons in 1927 as compared with 7,923,932 in 1924. Products of animals likewise declined somewhat over this period, whereas bituminous coal and forest products remained virtually stationary.

Moreover, to the favorable traffic situation shown by the 1927 figures those to date in the current year may be adduced. Business is holding up well with gross revenues only slightly under those of last year and with a decrease in operating expenses more than enough to offset the decline. To this may be added the fact that the Department of Agriculture's forecast of winter wheat production in the four principal producing states served by the Rock Island runs 20 per cent ahead of last year's harvest.

Capital Expenditures Carefully Made

Favorable traffic conditions, however, account only in part for the Rock Island's move into the list of dividend-paying railroads. The real credit must be given to the policy of judicious expenditures for improvements to effect operating economies which the road has carried on consistently since the end of federal control. Important among these has been the double tracking of the line between Topeka, Kans., and Herington, 83 miles, which was completed last year, which gives the road, with its trackage rights over the Union Pacific eastward from Topeka, a 150-mile double track division for the movement of its heavy California and southern traffic. This project was carried on by easy stages, a few miles per year. The savings made possible by this improvement may be imagined from the fact that formerly it was necessary to operate this stretch as two freight districts, one of 67 and the other of 83 miles, whereas crews now operate over the entire 150 miles. The "east end" of the Kansas division now expedites the movement of traffic instead of proving a costly delay to it.



The Rock Island Lines

The company has invested some $55,000,000 in improvements to property and $40,000,000 in new equipment since reorganization in 1917 and it is the result of this, judiciously expended, to which the major credit for the improved showing must go.

Among the road's equipment acquisitions during the past four years have been 80 modern locomotives, about 6,000 freight train cars, 100 pasenger train cars and 10 rail motor cars. Along with the efficient new power installed has proceeded a program of betterments to existing locomotives—superheaters, improved valve mechanisms, brick arches, syphons, etc. To these, together with improvements in grade, must be given the credit

Table 1—Chicago, Rock Island & Pacific, Operating Results, Selected Items 1916-1927 (Inclusive)

	Mileage	Revenue ton miles	Revenue passenger miles	Revenue per ton mile, cents	Total operating revenues	Total operating expenses	Net operating revenues	Operating ratio	Net railway operating income	Net after charges
1916	8,088	6,427,424,000	969,061,000	0.86	$80,889,129	$55,091,717	$25,797,412	69.10	.....	$8,078,189
1917	8,218	7,076,007,000	1,100,674,000	0.84	89,608,722	66,046,104	23,562,618	73.70	.....	7,527,145
1918	8,250	7,052,676,000	1,127,838,000	0.98	104,289,565	89,550,327	14,739,238	85.87	.....	5,481,099
1919	8,055	6,996,303,000	1,209,719,000	1.10	116,624,683	101,497,733	15,126,950	87.03	.....	4,887,891
1920	8,102	7,885,424,000	1,234,110,000	1.20	141,946,973	133,535,832	8,411,141	94.07	.....	4,663,155
1921	8,123	6,857,673,000	957,054,000	1.44	139,108,816	114,299,897	24,808,919	82.17	$16,433,877	4,502,145
1922	8,116	6,650,444,000	872,967,000	1.32	125,086,233	100,570,926	24,515,307	80.40	14,656,572	4,285,379
1923	8,096	7,475,439,000	888,868,000	1.25	130,403,086	104,990,136	25,412,950	80.51	14,841,164	4,481,502
1924	8,073	7,853,201,000	838,904,000	1.21	130,880,512	101,206,546	29,673,966	77.33	17,708,956	6,835,221
1925	8,022	7,912,863,000	815,323,000	1.21	130,683,246	100,769,486	29,913,760	77.17	17,926,384	6,966,132
1926	8,024	8,316,602,000	792,066,000	1.23	137,911,415	102,812,256	35,099,160	74.55	22,358,129	11,515,881
1927	8,052	8,589,546,000	764,144,000	1.23	140,086,991	103,333,050	36,753,941	73.76	23,436,723	12,564,830

for the better train loading—14.4 per cent heavier in 1927 than in 1924 (Table 2).

The road has also in recent years done considerable toward providing better yard performance. In no case have expenditures in any one instance been heavy, but enough has been spent at principal strategic points on the system to cut down delays and heavy operating

Table 2—Chicago, Rock Island & Pacific (Inc. C. R. I. G.) Comparison of Selected Freight Operating Statistics

	1927	1924	Per cent of change Inc.	Dec.
Mileage operated	8,052	8,071		0.2
Gross ton-miles (thousands)	25,336,444	22,400,374	13.1	
Net ton-miles (thousands)	9,966,054	9,256,964	7.7	
Freight train-miles (thousands)	17,457	17,664		1.2
Freight locomotive-miles (thousands)	18,428	18,204	1.2	
Freight car-miles (thousands)	696,672	613,803	13.5	
Freight train-hours	1,383,677	1,416,541		2.3
Tons of coal consumed by freight locomotives	2,030,281	2,157,769		5.9
Car-miles per day	34.3	29.1	17.9	
Net tons per loaded car	23.0	22.6	1.7	
Per cent loaded to total car-miles	62.3	66.6		6.5
Net ton-miles per train-hour	7,203	6,535	10.2	
Freight cars per train	40.9	35.7	14.6	
Gross tons per train	1,451	1,268	14.4	
Net tons per train	571	524	8.9	
Train speed, miles per train hour	12.6	12.5	0.8	
Gross ton-miles per train-hour	18,311	15,813	15.8	
Net ton-miles per train-hour	1,203	6,535	10.2	
Lb. coal per 1,000 gross ton-miles	140	166		15.7
Loco. miles per loco. day	70.1	61.4	14.2	
Per cent freight locos. unserviceable	17.2	26.4		34.8
Per cent freight cars unserviceable	6.5	9.9		34.3

Based on Reports of the Bureau of Railway Economics.

expenses. Among the points where improvements of this character have been made are Joliet, Ill., Armourdale (Kansas City) Kan., Herington, Kan., and Shawnee and Oklahoma City, Okla.—this not including additional facilities and extensions provided in the oil producing regions. Extensive engine terminal improvements at Burr Oak (Chicago) were completed last year. Sidings have been lengthened at several points. The road has carried on a program of installing more efficient coal and cinder handling plants and boiler washing facilities at a large number of its terminals—improvements which return great dividends in operating economies without bulking large at any one point.

Table 2 shows the great improvement which took place in the operating efficiency of the property from 1924 to 1927. Taken in conjunction with the known program of improvement carried on by the Rock Island since its reorganization, the cause and effect relationship becomes at once apparent—the movement of 13.1 per cent more ton-miles with a reduction of 1.2 per cent in freight train-miles and of 2.3 per cent in freight train-hours, together with improved fuel efficiency.

Along with the careful expenditures of new capital, placing each dollar where it would appear to be most productive, has gone a scientific study of traffic movement and a successful effort to promote efficiency and economy in yard operations, which methods have been fully described in the *Railway Age*.

From a standpoint of passenger traffic the Rock Island has about the same story to tell as most other roads—persistent declines each year. Its passenger revenues in 1927 were almost 5 per cent lower than in the preceding year and 12 per cent lower than in 1924. During the current year the earnings of this service are running about 14 per cent lower than in 1927. On the other hand, the company has countered this declining tendency with a vigorous and intelligent campaign for long-haul passenger business—without which earnings would doubtless have declined much more than they have. Prospects for summer tourist travel this year, for which business the company actively competes, are said to be about normal.

So much for the earnings side of the passenger traffic situation from an expense standpoint there are indications of considerable economies in prospect by reason of rather extensive experiments with rail motor car equipment. From 1924 to 1927 the road purchased 10 units of this equipment and during the present year has added materially to this total. Savings in operating costs as well as improved service to the public are foreseen from these expenditures. In addition to its existing service between California and the East, the Rock Island has recently begun to operate a daily train in conjunction with the Chicago & Alton, using the latter's line between Chicago and Kansas City, the Chicago Union Station being the eastern terminal.

Roadway maintenance progress during the past four years has been as follows:

Year	Treated Ties Applied	Miles of New Ballast	Miles Reballasted	New Rail 90-lb. or Heavier
1923	1,445,952	62	348	190
1924	1,243,979	58	219	165
1925	1,460,990	25	249	185
1926	1,565,380	24	321	244
1927	1,624,177	33	521	281

The figures reflect a consistent policy of track maintenance year by year. As for maintenance of equipment, Table 2 shows an improvement of 34 per cent in serviceable cars and locomotives from 1924 to 1927. Maintenance expenditures during the past four years have been as follows:

	Maintenance of Equipment	Maintenance of Way and Structures
1924	$27,937,079	$15,086,588
1925	28,271,704	15,622.835
1926	28,607,807	17,145,108
1927	27,586,674	18,585,992

These figures join with those shown above in testifying to the consistent maintenance policy of the company and to the fact that the constantly improved showing of recent years has gone hand in hand with relatively steady maintenance expenditures.

Transportation expenses, on the other hand, have been kept well under control. In 1927 they totaled $50,634,306, as against $51,781,161 in 1924—which intervening period saw an actual increase of 13 per cent in gross ton-miles, being further testimony as to the effectiveness of the road's capital expenditures and to the care exercised by the management in promoting efficient conduct of transportation. The ratio of transportation expenses to total operating expenses in 1927 was 49, as against 51.16 in 1924. The equipment maintenance ratio was 26.70 in 1927 and 27.60 in 1924, while the ratio of maintenance of way expenses to total operating expenses was 17.99 in 1927, as against 14.91 in 1924. The operating ratio has shown a progressive decline from 82.17 in 1921 to 73.76 in 1927, which, as before stated, was the best year in the company's history. Earnings on the common stock, on which 5 per cent dividends were begun in 1927, were 12.10 in 1927, 10.62 in 1926, 4.54 in 1925, and 4.36 in 1924.

During the year the Rock Island issued $40,000,000 of 25-year secured 4½ per cent bonds, security being $45,000,000 first and refunding mortage 4 per cent bonds held in the treasury. The trust indenture provides for the ultimate issuance of $80,000,000 of these bonds to be similarly secured; there being a further provision that when the first and refunding mortgage matures in 1934, the company will execute a new mortgage of essentially the same rank, rating the 25-year bonds then outstanding on an equal basis with the new issue. The new financing will enable the company to fund maturing short term obligations, provides for raising new capital needed until 1934, enables a portion of the 1934 maturity to be financed in advance of that date and effects a reduction in interest charges on current obligations. The figures amply bear out and fortify the statement made by President Gorman in the 1927 annual report to the effect that the property is in the best capital position it has enjoyed for many years.

A. S. T. M. Holds Annual Convention

Program at Atlantic City meeting, June 25-29, includes a number of papers and reports of general interest to railroad men

THE thirty-first annual meeting of the American Society for Testing Materials was held at the Chalfont-Haddon Hall, Atlantic City, N. J., June 25 to 29, with an attendance of about 1200 members and guests. A large part of the business of the society during the five days was conducted in group committee meetings, but in addition about 100 papers and committee reports were presented covering a wide range of subjects in the field of material specifications and tests. The general sessions, of which there were 14, were held both day and evening, and for the most part were presided over by President H. F. Moore, professor of engineering materials, University of Illinois, Urbana, Ill. The newly elected officers were: President, G. W. Thompson, director of the National Lead Company, and vice-president, K. G. Mackenzie, consulting chemist of the Texas Company.

Resistance of Cement to Sulphate Waters

The subjects of cement and concrete received much attention at the hands of a number of committees, and of members who presented papers; most of the discussion was with reference to improved methods and apparatus for determining the various qualities of these materials. D. G. Miller, drainage engineer, Bureau of Public Roads, U. S. Department of Agriculture, presented a paper on the resistance of portland cement concrete to the action of sulphate waters as influenced by the cement. He said that standard portland cements from different manufacturing plants vary greatly in resistance to the action of sulphate waters, and that this being the case, as determined by tests, most certainly the first consideration for all concrete to be exposed to such action should be the cement itself, and that regardless of all other precautions, the use of any cement of low resistance, as determined by special tests, should be avoided.

The paper outlined a new six-month briquet test and gave the results of laboratory and field tests of 30 portland cements after exposure periods ranging upwards to more than three years. Under the same exposure conditions, the more resistant cements outlived those of least resistance by as much as eight times.

New tentative specifications for reinforced concrete culvert pipe were submitted by a special committee working jointly with six other organizations, including the American Railway Engineering Association. The new specifications supersede those presented in 1926, the principal revisions being in the amount of circumferential reinforcement, the load requirements for extra strength pipe, and the inclusion of an absorption test.

Concrete Is Given Large Consideration

Committee C-9 on Concrete and Concrete Aggregates presented new tentative specifications for concrete aggregates, and gave a detailed report on the design of concrete mixtures, dealing specifically with the five essential steps involved in the application of the relationship between the water-cement ratio and strength. These were enumerated as (1), the selection of cement, aggregates and water; (2), the selection of the strength for which to design; (3), the determination of the proper proportions of fine and coarse aggregates to give the desired workability for the given water-cement ratio; (4), the determination of the water-cement ratio applicable to the materials selected, and (5), the conversion of the proportions into field units.

In discussing cement under this subject, the committee pointed out that it has not yet proved to its satisfaction that high, early-strength cements are the best, if other factors, such as soundness and permanence, are given proper weight. Supplementing the report of the committee was a paper by George Conahey, research engineer of the Celite Company, on the effect of admixtures on the water-cement ratio, strength relation of concrete.

Among other papers presented under the head of concrete, was one describing a method of determining the workability of a concrete mixture by measuring the power consumed in mixing the concrete; one on the permeability of concrete describing a method of determining the flow of water through concrete, and another describing a method for testing the durability of concrete by alternate freezing and thawing at low temperatures.

Iron and Steel Given Attention

In an effort to harmonize the society's specifications for structural steel with those of the American Railway Engineering Association, Committee A-1 on Steel, submitted revisions to its standard specifications for structural steel for bridges and buildings, included among which were requirements for copper-bearing steel. Revisions were also presented for immediate adoption covering carbon-steel forgings for locomotives.

Among the proposed revisions in tentative standards were slight revisions recommended in the standard for structural steel for locomotives and cars, and for lap-welded and seamless steel pipe for high temperature service. The committee recommended that the tentative specifications for soft steel track spikes and for steel tie plates be continued as tentative for another year, and a resolution passed, requested the Executive Committee to ask for the co-operation of the Mechanical Division, A. R. A., in the matter of revising present specifications for springs.

Committee A-2 on Wrought Iron proposed tentative specifications for iron and steel chain of two classes: Crane chain for slings, hoists, steam shovels and marine uses, and proof coil for railroad cars, construction and forestry work. It also recommended a revision in the standard specifications for staybolt, engine-bolt and extra refined wrought iron bars, which consists of a reduction in the required percentage of elongation for staybolt iron, sizes ¾ in. in diameter and under. Among other things, the committee reported that it is investigating the effect of phosphorus in varying amounts on staybolt iron.

A study of centrifugally-cast pipe versus sand-cast pipe was the subject of a paper presented by F. N.

Menefee, professor of engineering mechanics, and A. E. White, professor of metallurgical engineering, both of the University of Michigan. According to the paper, 48 pieces of pipe were subjected to the following physical, chemical and metallurgical tests: Tension, variation in thickness, radial deflection, inside smoothness, cutting, metallographic, impact, radial compression, transverse, hardness, removal of strains and chemical. In the first six tests mentioned, the results were favorable in a more or less degree to centrifugal-cast pipe; in the next four tests the results were favorable to sand-cast pipe, and in the last two tests, no decision was reached. The principal conclusions drawn by the authors of the paper were that under present practice and on the basis of similar costs, there is no outstanding advantage to either class of pipe, but that taking the same factors of present practice and cost into consideration, the purchase of centrifugally-cast pipe is recommended.

Corrosion and Preservative Coatings

That copper-bearing metal shows marked superiority to non-copper-bearing metal in the matter of resistance to corrosion when exposed to air, was clearly brought out in the progress report of Committee A-5 which covered the exposure tests being conducted by the society at Fort Sheridan, Ill., Pittsburgh, Pa., Annapolis, Md., Washington, D. C. and at other points. After 11 years of observations at Fort Sheridan, practically all of the light-gage material, both copper-bearing and non-copper-bearing, had failed, but it was pointed out that the failures in the copper-bearing sheets have been in the main after 126 to 132 months exposure, whereas the non-copper-bearing groups have been showing failures in substantial numbers each year since the end of the first 37 months of test. Continuation of the total immersion tests of specimens in city water confirmed previous findings where the specimens were submerged in mine drainage and brackish water, that corrosion resistance of iron and steel when submerged, is practically uninfluenced by copper content within the range of the tests.

Committee A-5 also submitted tentative specifications for zinc-coated (galvanized) barb wire and for zinc-coated (galvanized) wire strand, both of which were accepted. It also reported substantial progress and large interest by state highway departments and the railroads in its metal culvert corrosion investigation.

Committee D-1 on Preservative Coatings for Structural Materials, in an extended report, submitted among other things, revisions of the standard specifications for raw linseed oil and revisions of tentative standards for boiled linseed oil, and recommended that six tentative standards covering several paint pigments and methods of test be advanced to standard. All of the recommendations of the committee were approved.

Railroad Bearing Bronzes Discussed

The wear and mechanical tests of some railroad bearing bronzes was the subject of a paper presented by H. J. French, senior metallurgist, U. S. Bureau of Standards, who stated that the need for a study of bearing bronzes was first recognized about 1920 by certain parties who felt that such wide variations in the specifications of different carriers for bearing metals were against the interests of both the carriers and the metal manufacturers. The paper explained that copper-tin-lead alloys, both chill-cast and sand-cast, were tested under friction, without lubrication, at temperatures from 70 to 350 deg. F.; under friction in the presence of a lubricant at 70 deg. F.; and under tension, single-blow impact, and repeated pounding at temperatures from 70 to 600 deg. F.

As a result of the tests, it was noted that generally chill-cast bronzes were less resistant to wear and notched-bar impact than sand-cast bronzes, but more resistant to pounding and tension. Increase in lead, particularly in the range of 0.25 to 10 per cent, improved the wearing properties but lowered the resistance to pounding, impact and tension. Increase in tin improved all properties. Increase in temperature of the tests generally decreased resistance to tension, impact, pounding and wear, the changes being most marked from 350 to 600 deg. F. Mr. French stated that on the whole, there does not seem to be any real justification for the very wide fluctuation in the specifications of different carriers for bearings of similar design and subjected to similar service.

In the field of non-ferrous metals and alloys, Committee B-2 made a large number of recommendations, among which was the advancement to standard of the tentative specifications for bronze castings in the rough for locomotive wearing parts, and the similiar advancement of the tentative specifications for lined car and tender journal bearings.

Hearing on L. F. Loree's Railway Directorships

WASHINGTON, D. C.

ANOTHER chapter was added to the involved history of the efforts to bring about a merger or unification in some form of the Missouri-Kansas-Texas, the Kansas City Southern and the St. Louis Southwestern, at a hearing on June 29 and 30 before Commissioner P. J. Farrell and Director C. D. Mahaffie of the Bureau of Finance of the Interstate Commerce Commission, on the question as to whether the commission should revoke its order of April 11, 1925, which had authorized L. F. Loree to hold the position of director of the Missouri-Kansas-Texas while also being a director of the Kansas City Southern. The new chapter added little to what had been previously written, however, and much of the time of the hearing was taken up with argument as to what parts of the record already taken by the commission in connection with the southwestern merger proceeding should be segregated into a new record as evidence as to whether Mr. Loree should continue to be an "interlocking" director.

The hearing was held after Mr. Loree had requested a hearing before the entire commission, following his notification that Division 4 of the commission was considering revocation of his authorization and that he would be given ten days in which to show cause why the order should not be set aside. Mr. Loree had also asked for a specification of any charges against him and his counsel had filed a petition, which was overruled at the outset by Commissioner Farrell, requesting a postponement and a hearing before the entire commission after it should have given a formal statement of the charges he was expected to meet.

Commissioner Farrell indicated that the issues would be shown by the testimony introduced and when counsel on several occasions asked what the testimony had to

do with the fitness of a particular man to serve as a director he said the question was not as to Mr. Loree's fitness but as to whether "public or private interest would be adversely affected."

Thomas Healy, director of the commission's Bureau of Inquiry, stated that it was not necessary to have any hearing whatever in such a case and that it was granted out of courtesy. Conditions have changed, he said, since the commission issued its order in 1925, and the Kansas City Southern has advised the commission that it has divested itself of stock in the M-K-T. As he also introduced evidence tending to show that the two roads are in competition, the inference was left that that constituted the case against Mr. Loree. After Mr. Loree had been called as a witness for the commission and questioned, he declined to testify in his own behalf, and after some discussion it was decided that the case should be submitted without briefs or argument.

R. C. Duff, president of the Waco, Beaumont, Trinity & Sabine, and Walter E. Meyer, representing minority stockholders of the Cotton Belt, both of whom had filed complaints with the commission asking it to institute anti-trust proceedings against the roads, appeared as interveners in the case and protested against Mr. Loree being allowed to continue as director of both companies on the ground of conflicting interests on the part of the two companies and that it was through Mr. Loree that the alleged violation of the Clayton law was being accomplished. Mr. Duff also based his opposition on the claim that it was Mr. Loree's influence that had changed the attitude of the M-K-T from a friendly one to an unfriendly one in relation to the acquisition of his property or its development by an extension to Port Arthur in competition with the Kansas City Southern.

Commissioner Farrell sustained objections offered by Samuel W. Moore, general counsel of the Kansas City Southern, to the introduction of much of the evidence offered by Messrs. Healy, Duff and Meyer consisting of parts of the record in the unification case and throughout the hearing endeavored to confine the record to the direct question involved, so as to keep it separate from the record to be made in the anti-trust case and on the pending application of the M-K-T for authority to acquire control of the K.C.S. and the Cotton Belt. He said the commission has not yet held that there is any violation of the Clayton law, although Mr. Duff apparently intended to have that taken for granted, and that the present record was not concerned with the merits of the proposed unification or the question as to whether the M-K-T should take over the Waco line.

C. C. McChord, a former member of the commission, appearing as counsel for Mr. Loree, said that a postponement was not asked in an effort to cause delay but that Mr. Loree had a right to be advised of the charges against him and that his counsel had not been able to prepare their case without knowing the nature of the evidence. Mr. Moore said that if it is the policy of the commission that a man shall not sit on the boards of two companies between which there is some competition Mr. Loree will bow to the will of the commission, but that, as such a policy has not been expressed, in common fairness he should be informed of the charges.

Mr. Loree was then called as a witness and questioned by Messrs. Healy, Duff and Meyer regarding the various transactions in connection with the proposed unification. He stated that they represented an earnest effort to give effect to the provisions of the Transportation Act by creating a unified system of railroads and that it had been his intention throughout to keep the commission fully advised of the various steps taken. He said he would be very much disappointed if a unification could not be accomplished. Asked by Mr. Meyer how he could perform his duty to the stockholders of both companies in the way of advising them as to whether they should sell their stock Mr. Loree said he did not consider it the duty of a railroad officer to give such advice.

C. Haile, president of the M-K-T, also was called as a witness and questioned as to the extent of competition between the K.C.S. and the M-K-T and between the latter and the St. L. S. W. He said that the roads are not in direct competition, although they participate, with the other roads in the Southwest, in the indirect competition for "overhead" traffic. Mr. Moore objected to questions relating to the competition with the Cotton Belt and said that the K.C.S. does not control that road, and Mr. Healy objected to questions as to the competition with other roads in the Southwest. Mr. Moore also objected to testimony relating to competition unless it were shown that there had been some change in the relation since the date of the commission's authorization but Commissioner Farrell said he did not understand that as a matter of law the testimony need be confined to changed conditions. When Mr. Moore asked Mr. Haile about competition between the Rock Island and the Frisco and Mr. Healy objected, he said the purpose was to show that the commission had authorized common directors on those roads in spite of the competition. Mr. Duff said the policy of the commission had been more recently disclosed in the Wheeling & Lake Erie directorate case, in which the commission had denied the applications of officers and directors of three trunk lines to serve also as directors of the Wheeling company. Commissioner Farrell said that if the commission had made a mistake in some other case it did not follow that it should make the same kind of a mistake again.

Mr. Healy and Mr. Duff sought to introduce into the record extracts from the testimony of Mr. Haile and Mr. Duff in the unification case and when the commissioner sustained an objection Mr. Duff noted an exception for the purpose of an appeal to the full commission. Mr. Moore took the same course as to some of the testimony that was admitted over his objection, but many of the points sought to be made by the testimony were put into the record in the form of statements as to the purpose for which they were offered. A large part of Mr. Healy's evidence consisted of correspondence and other documents which were not read.

Mr. Haile said that the entire board of the M-K-T regards Mr. Loree's service as a valuable asset and that he has not attempted to influence its policy in its competition with other roads, but that his suggestions have been largely of an operating nature. When Mr. Duff asked if he had not been put on the board by the Kansas City Southern after it had acquired stock in the M-K-T and pursuant to a plan of obtaining control of the M-K-T and "not because of his eminence and ability", Mr. Haile replied that he had been re-elected after it had been understood that the Kansas City Southern was to dispose of its stock. J. M. Bryson, general counsel of the M-K-T, put into the record the minutes of the meeting at which Mr. Loree was elected, showing that he had received the proxy votes of some 520,000 stockholders in addition to the stock held by the K.C.S.

Mr. Duff asked if there had not been a "clash of interests" between the K.C.S. and the M-K-T as to whether the latter should acquire control of the Chicago & Alton. Mr. Haile said he would not say it amounted to a clash, but that whereas there had at one time been

a thought that the situation might require the southwestern lines to extend to Chicago he now thought the M-K-T should remain a St. Louis line.

In endeavoring to get into the record an abstract of his testimony in the former case, Mr. Duff said he wanted to show the implacable opposition of Mr. Loree and the K.C.S. to the extension of his properties and that after the M-K-T had indicated, in its application to the commission, that it would take over any short lines in its territory that the commission should direct, Mr. Haile had written to him that it was not contemplating including the Waco line. He asked if Mr. Haile had taken this up with Mr. Loree. Mr. Haile said he had discussed with him the general situation of the short lines but had not asked him as to whether the Waco line should be included because it would be "absurd" to do so, as the line did not connect with the Katy.

Mr. Duff said he had been coming to the commission for a long time "to get justice" and that he was begging the commission to "take these big systems off my neck". After he had said that "the Katy was my friend until Loree got hold of it", Mr. Moore asked if the company had ever pressed him for the interest on his note to the company, on which he was in arrears, and he replied that he had been treated very considerately in that respect. He said that not only his private interests were affected but the interests of the communities served by his line and that he was not necessarily asking that the line be taken over by the M-K-T but that it should be operated in alliance with the M-K-T. He said it had never been denied that one of the reasons that K.C.S. wanted the M-K-T was to prevent the development of the Waco line in competition with it. Mr. Moore said that was "so frivolous as not to deserve further consideration."

The Interstate Commerce Commission on June 29 issued an order vacating its order of May 8, 1925, which had authorized Charles Hayden, chairman of the board of the Chicago, Rock Island & Pacific, to hold the position of director of the St. Louis Southwestern while continuing to serve as director of the Rock Island. "The record shows", the report by Division 4 of the commission said, "that the Rock Island and the St. Louis Southwestern are in active competition in various parts of the southern and southwestern territory. We are unable to find, upon the existing facts, that the holding by the applicant of the position of director of the St. Louis Southwestern Railway Company, while continuing to act as director of the Chicago, Rock Island & Pacific Railway Company, would not adversely affect public or private interests."

The report recited that the authorization had been given after the Rock Island had acquired a majority of the preferred stock and $1,576,800 of the common stock of the Cotton Belt and that it contained a proviso that in the event the commission should deny the Rock Island's pending application for authority to acquire control of the Cotton Belt the authority granted should cease at the expiration of 30 days after the date of any order denying such application. Mr. Hayden was authorized to act as director of the Cotton Belt, it says, primarily to represent the large holdings of the Rock Island, and on the same day J. E. Gorman, Nathan L. Amster and Marcus L. Bell, representing the Rock Island interests, were also authorized to act as directors of the Cotton Belt. Later the Rock Island disposed of all the Cotton Belt stock owned by it and on October 27, 1925, withdrew its application for authority to acquire control of the Cotton Belt. Thereafter Messrs. Gorman, Amster and Bell resigned as directors of the St. L. S. W. but Mr. Hayden continued to act in that capacity.

The commission's docket file on the subject includes some correspondence between M. L. Bell, general counsel of the Rock Island and Director Mahaffie of the Commission's Bureau of Finance, in which Mr. Mahaffie expressed the intention of recommending to Division 4 that the authorization be revoked in view of the changed situation, but Mr. Bell asked that Mr. Hayden be allowed to continue as a director for some time longer while arrangements were being made for the disposition of the stock.

Roads Ask Higher Mail Pay

WASHINGTON, D. C.

ORAL argument was heard by the Interstate Commerce Commission on June 29 in the railway mail pay case, in which the Class I railroads generally, the New England lines and short line railroads are seeking an increase in their rates of pay for the carrying of the United States mails. The argument was held following the filing of exceptions by the various parties to the proposed report by Attorney-Examiner F. E. Mullen, recommending an increase of approximately 15 per cent for most of the Class I roads and an increase of 80 per cent for short lines.

The Committee on Railway Mail Pay, representing the principal Class I roads except the New England lines, in its statement reiterated its contention that the railways generally are entitled to an increase of 40 per cent.

The 15 per cent increase, the statement said, is inadequate to compensate the railroads for the cost of the service and a fair return on the property devoted to it and "from whatever standpoint the case be approached, whether from the cost study, a comparison of general railroad conditions in 1917 and now, or in respect of the value of the service, it is respectfully submitted that a 40 per cent increase is fully justified, and that on the face of the proposed report the minimum increase which can be authorized, consistent with the report and the record, is 26.61 per cent."

The exceptions taken to the report are as follows:

(1) To the failure of the attorney-examiner to find that trunk line rates should be advanced 40 per cent.

(2) To the finding that rates should be increased but 15 per cent and to the specific rates recommended in accordance therewith, upon the ground that it appears from the report of the attorney-examiner as well as upon the evidence, that such advance is inadequate to compensate trunk line carriers for the cost of the service and a fair rate of return on the value of the property devoted thereto.

(3) To the failure of the attorney-examiner to include in the estimated cost of the service that portion of the cost of handling non-revenue freight assigned thereto in the evidence submitted by the Committee on Railway Mail Pay and upon the further failure of the attorney-examiner to include any amount whatsoever for such service in the cost of carrying the mails.

(4) To the proposed modification of the 50 per cent rule.

(5) To the failure to find and report that the use by the Postoffice Department of R.M.P. Form 5050 is improper and to recommend that it be abolished.

(6) To the failure to find that Rule 10 should be amended so as to provide a method for computing the

number of sacks required to fill the space of lesser units in storage cars and closed pouch service, so as to conform more closely to the space shown by the evidence to be actually used, and to recommend either the amendment in said rule proposed by the Committee on Railway Mail Pay or an adequate and appropriate substitute therefor.

"If rates are to be made so as to pay the cost of the service and a fair return thereon", the statement says, after a discussion of the various cost studies used in the proceeding, "as they should be, there is no warrant for authorizing any increase less than the 26.61 per cent which would result from the application of the commission's formula in which all disputed issues relating to non-revenue freight, investment and depreciation have been resolved against the carriers.

"If, on the other hand, rates are to be based on other considerations, the recommended increase is likewise inadequate. Rates now in effect were based on conditions existing in 1917 plus a 25 per cent advance for subsequent increase in cost of operation on and after January 1, 1918. Operating expenses and taxes per train mile are now 70 per cent higher than in 1917, wages per hour about 100 per cent higher, operating expenses, taxes and a 5.75 per cent return on investment per train mile 60 per cent higher. If the rates fixed by the commission in that proceeding were reasonable, an advance of 40 per cent or more would be fully warranted to take care of such increased costs without any cost study or space apportionments.

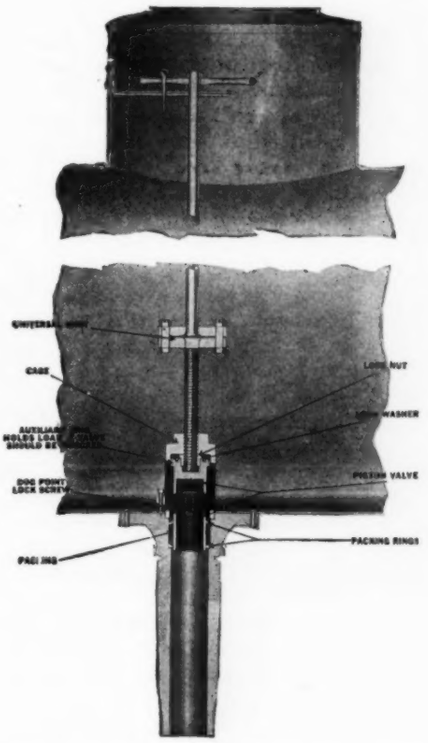
"Finally, if the rates should be fixed in respect of the value of the service rather than its cost, the recommended advance is clearly inadequate, and that suggested by the carriers most moderate. Carriers are now performing for the Postoffice Department twice the amount of service measured in ton miles for an increase of but 4 per cent in pay. This increased volume has been the largest contributing factor in the increase of postal revenues from $329,726,116 to $659,819,801. Based on the value of service, an increase in excess of 40 per cent would be easily justified."

A statement filed on behalf of 173 short lines said the proposed report is in error in failing to recommend more than an approximate 80 per cent increase to Class II and III short lines as a group, even upon the basis of the cost studies, and in failing to recommend separate findings and individual rates upon the merits of each case. The commission was asked to make individual findings and orders fixing reasonable compensation for each and every short line, taking into proper consideration and giving due weight to all the proof for each road.

The Young Tank-Car Bottom-Outlet Valve

THE Bureau of Standards, in co-operation with the joint committee of the American Railway Association, American Petroleum Institute and American Railway Car Institute, conducted a series of tests at Philadelphia during 1927 to pass on and classify tank car bottom-outlet valves. The Young valve, manufactured by the Hills-McCanna Company, 2349-59 Nelson Street, Chicago, is one of the Class A valves approved by the joint committee for unlimited service.

The piston of the valve is raised and lowered by a threaded stem operating through a threaded hole in the top of the valve housing or cage. Closure is effected between the piston shoulder and the piston wall by several layers of packing set into close contact with the piston, and pressure exerted on the piston causes the shoulder to engage on the top packing ring, compressing the packing around the upper skirt of the piston and making a tight closure both between the



A Sectional View of the Young Tank-car, Bottom-outlet Valve

piston shoulder and the upper skirt. The packing is protected from rust or scale by the skirt of the hollow piston, thereby insuring a positive seal and preventing leakage. No liquid passes over the packing at any stage of the opened or closed position. Construction is such that no damage to the valve or leakage will take place in the event that the outlet leg is broken off in transit.

A supplementary full metallic closure, to operate as an auxiliary as well as an emergency seat, is provided by a piston ring set in the shoulder of the piston that acts in conjunction with the lower cage wall as a seal when the valve is in the closed position. The stem is so threaded that the piston cannot be run down where the piston ring can drop below the bottom of the cage.

While three seats are provided (two non-metallic and one full metallic) any one will hold the load. Actual service is said to have proved that this valve will carry gasoline safely and without leakage with the valve piston raised three full turns off the seat. There are no ground or lapped joints, packed glands being depended upon to hold the load, and the full metallic seat is added as an emergency factor of safety.

Another advantage is that the valve can be used for replacing valves on cars now in existence; also, tools have been designed for machining the outlet leg in place in the car, obviating the necessity of removal or replacement of the existing outlet leg.

January Accident Investigations

THE investigations of train accidents made by the Bureau of Safety of the Interstate Commerce Commission in the month of January included three collisions and three derailments. The reports of the director of the Bureau on these six investigations are given in abstract below:

Chicago, South Shore & South Bend, Parsons, Ill., January 1, 3:05 p. m.—Eastbound first-class passenger train No. 17, consisting of an electric motor and one trailer, stopped because of a disabled train ahead, was run into at the rear by eastbound second-class passenger train No. 73, consisting of three electric motors. The speed is estimated to have been from 15 to 50 miles an hour, and the standing train was driven forward into the one ahead of it, coming to rest after moving about 300 ft. One of the motor cars took fire and was consumed, with the exception of its steel framework. The motorman of No. 73 was killed and 48 passengers were injured. The conductor and a ticket collector of the standing train are held responsible for not properly protecting their train, and the motorman of No. 73 did not maintain a proper lookout. The rules call for a time interval of only three minutes between trains on this section of the road and the collector, on whom devolved the duty of flagging, was a man of limited experience, having been employed on July 1, 1927. The conductor, however, is held blameworthy, he knowing that the collector lacked experience. How the motorman came to neglect the lookout, cannot be determined but it appears that the windows were covered with frost so that he had to be specially vigilant to maintain a view of the line ahead. It was, of course, his duty to reduce speed or stop if he could not keep the windows sufficiently clear of frost.

Louisville & Nashville, Shirley, Ill., January 2. 5:15 a. m.—Northbound passenger train No. 56, moving at 20 or 30 miles an hour, collided with southbound passenger train No. 55, which had been stopped at the appointed meeting point (on the main track), making a bad wreck; the engineman of the northbound train was killed and two employees were injured. This engineman evidently knew that he was approaching the meeting point and that he was to enter the side track, but he did not properly control the speed. There was no evidence to indicate anything wrong with the air brakes and the inspectors conclude that he did not begin braking soon enough, especially in view of the unusually slippery condition of the rails. The grade at this point is descending and there was evidence to the effect that it is a difficult place to control speed. It appears that a rule requires a running air-brake test, on approaching a meeting point, but this test was not made.

Great Northern, St. Paul, Minn., January 9. 7:41 p. m.—Collision between express train No. 514 of the Chicago, St. Paul, Minneapolis & Omaha and westbound passenger train No. 17 of the Chicago Great Western, wrecking one car. A brakeman of No. 514 was killed and three other employees were injured. Train 514, consisting of a locomotive and four cars, was backing out of the "Y" about 1¼ miles west of the Union Station, proceeding toward a cross-over in the face of train No. 17, and the fault is laid on the latter train, which disregarded distant and home signals. These signals were color-light; red for stop and yellow for proceed. The report cites statements of trainmen tending to show inconsistency in the indications of the signals, but the conclusion of the inspector is that the signals functioned normally and that there was no evidence of anything to cause display of a false proceed indication. Both the engineman and the fireman of train 17 were men of experience and good records, and their eyes had been examined only a few months since; but they seem to have made various inconsistent statements.

International-Great Northern, Taylor, Tex., January 15, 6:03 p. m.—Northbound passenger train No. 4, consisting of locomotive 1151 and nine cars, was derailed at a misplaced switch while moving at about 40 miles an hour, and the locomotive was overturned. The second car in the train, which was of wood, was wrecked. The engineman and fireman were killed and three other persons were injured. The switch had been set to let a southbound freight train out of the yard; and the general yardmaster, who had agreed with the conductor of the freight to set it straight after the departure of the freight, is held blameworthy for neglecting to do so. Southbound freights leaving this yard have to ascend a steep grade and to enable them to get up speed for this movement, it has *for 24 years* been the practice of the conductor of the freight to entrust the care of the switch to some person in the yard. At the investigation, the conductor, after long discussion, accepted the responsibility, while the general yardmaster emphatically maintained that he had closed the switch, about an hour after the freight departed. Two or three hours elapsed after this before the passenger train came along. The inspector observes that any such irregular practice as prevailed in this case should be taken care of by a circular, modifying the general rules, but the officers under whose supervision this practice originated and was allowed to continue, are no longer connected with the railroad, and officers recently appointed "can hardly be held responsible." These officers should, however, correct the conditions without delay.

Missouri Pacific, Rochelle, La., January 26, 7:26 a. m.—Northbound passenger train No. 116,—two locomotives and nine cars,—was derailed at a facing point switch while traveling at from 35 to 50 miles an hour, wrecking both locomotives and doing much other damage. The engineman of the leading locomotive and the fireman of the second, were killed, and five passengers, three mail clerks and two employees were injured. The switch had been forced open but the inspector was unable to determine just how or when this occurred or why the engineman did not see the target, showing red. It is believed that the switch had been run through by a southbound train but the engineman and other employees on a southbound train which had passed a short time prior to the accident, had noticed nothing unusual.

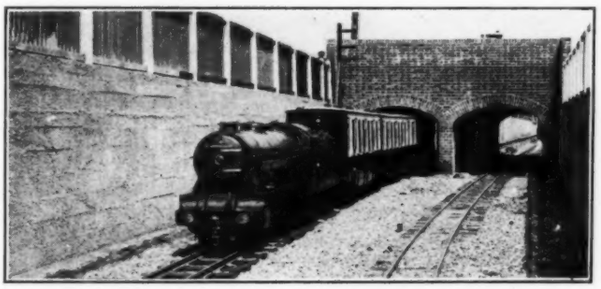
Missouri Pacific, Lake View, Ark., January 27, 2 p. m.—Northbound freight train, third No. 360, consisting of locomotive No. 1260 and 71 cars, was derailed, while moving at about 18 miles an hour, by running over the wing fence of a cattle guard which had been blown upon the track. The fireman was killed and two other employees were injured. The engineman had a train order instructing him to look for obstructions in this vicinity; and he said he was strictly complying with the instructions, but did not see anything on the track. The air was full of dust, and smoke and steam were blowing across the track so that he had but a short view. He was watching for a train order signal a quarter mile beyond but he said this did not interfere with his observance of the track. The engineman thought that the trailer was the first truck to leave the track. There was a high wind blowing but there was a difference of opin-

ion as to whether the wind was of sufficient velocity to have torn the wing fence from its fastening. The same wing had been found torn loose on the day previous but the track foreman averred that he had restored it to position and had securely fastened it. The inspector observes that, the wing having been torn down the day before, it is possible that some person had torn it loose and thrown it on the track or had left it in such a position that it was later blown there by the wind.

Romney, Hythe & Dymchurch Railway

THE Romney, Hythe & Dymchurch Railway, on the southeastern coast of England, not far from Dover, which is advertised as the smallest public railway in the world, has been extended five miles, so that it is now open from Hythe to Dungeness, a distance of 13¼ miles.

This railroad, with a track of 15-in. gage, was opened in the Fall of 1926, and a brief notice of it was published in the *Railway Age* of December 4, of that year. It then extended from Romney to Ashford Road, eight miles.



Train on Fifteen-Inch Gage Railway
The small white spot appearing between the locomotive and the tender is the reflection of the sun on the visor of the cap of the engineman

A chief point of interest in connection with the line is the design of the locomotive, four of which are shown in the illustration. These engines are 4-6-2 and 4-8-2. They are said to be exact replicas, one-third size, of standard locomotives of the London & North Eastern. They were designed by Henry Greenly, engineer of the road, and were built by Davey Paxman & Company, Colchester. The Pacific type engines have cylinders 5¼ in. by 8½ in. and driving wheels 25½ in. in diameter. These engines weigh about eight tons each. The company is now building, at its own shops, two locomotives of a Canadian Pacific type.

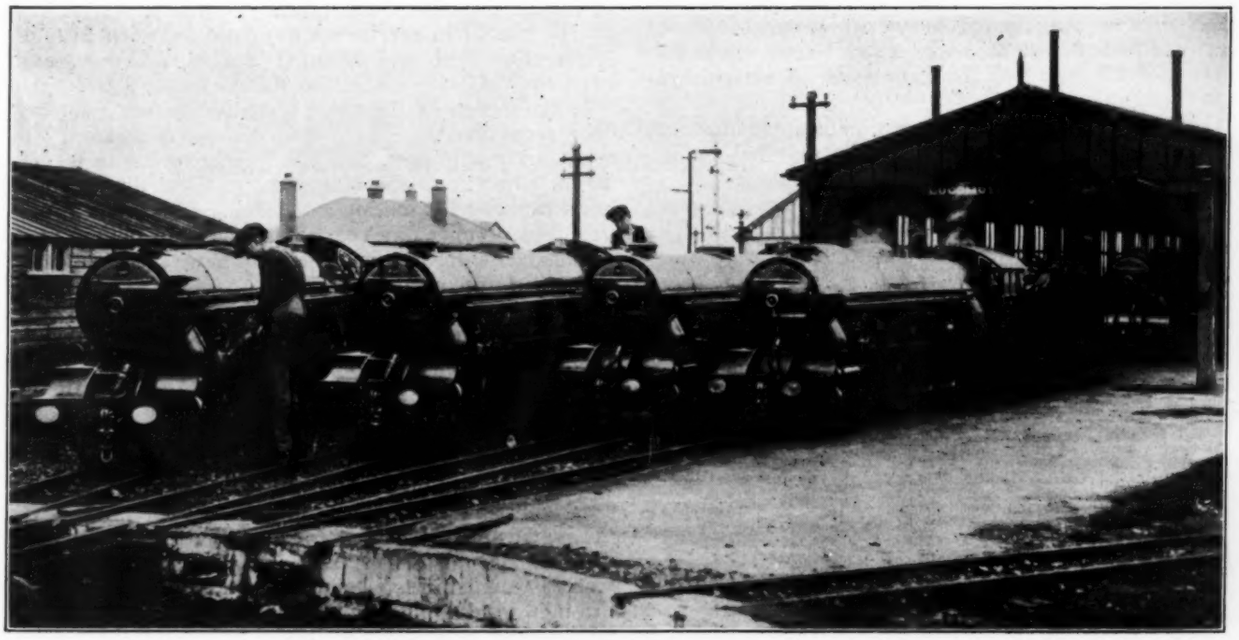
The passenger cars are semi-open, but the company has lately added for winter services some "Pigmy Pullmans." These are shown in one of the illustrations. These cars have three compartments, each seating four persons, and they are steam heated and electrically lighted.

"Pigmy Pullmans"
These coaches carry 12 passengers each

The height of the locomotives may be estimated by making comparison with the man at the left in the illustration. The amount of room in the cab may be guessed from the appearance of the face of the engineman in the 4-8-2 engine at the right.

The short "tunnel" shown in the illustration is on the extension to Dungeness.

The officers of the road are: chairman, Sir Ivor Maxse; general manager, B. D. Bellamy; engineer, Henry Greenly. Headquarters, New Romney, Kent.



Lilliputian Locomotives of the Romney, Hythe & Dymchurch Railway

Increased Carloading Expected in Third Quarter

WASHINGTON, D. C.

TRANSPORTATION requirements for 29 of the principal commodities in the third quarter this year, (July, August and September) are estimated approximately 9,910,768 cars, an increase of about 597,031 cars above those of the corresponding period in 1927 or 6.4 per cent, according to reports received by the Car Service Division of the American Railway Association from the thirteen Shippers' Regional Advisory Boards.

This estimate is based on the best information obtainable at the present time by the commodity committees of various Shippers' Regional Advisory Boards as to the outlook. Of the thirteen boards, eleven estimated an increase in transportation requirements for the third quarter of the year, while the other two estimated a decrease. The eleven boards estimating an increase over the preceding year were the Atlantic States, Allegheny, Great Lakes Northwestern, Pacific Coast, Southeastern, Southwestern, Middle Western, Trans-Missouri-Kansas, New England, and the Pacific Northwest Boards. Those estimating a decrease were the Central Western and the Ohio Valley boards.

The estimate by each Shippers' Regional Advisory Board as to what freight loadings by cars are anticipated for the 29 principal commodities in the third quarter this year compared with the corresponding period in 1927, and the percentage of increase or decrease follows:

Board	1927	1928	Per cent of increase or decrease
New England	171,445	174,968	2.1 increase
Atlantic States	1,081,003	1,110,239	2.7 increase
Ohio Valley	1,183,338	1,128,173	5.0 decrease
Northwestern	665,903	688,649	5.0 increase
Central-Western	352,057	340,829	3.2 decrease
Pacific Coast	410,394	418,997	2.1 increase
Pacific Northwest	297,416	316,358	6.4 increase
Allegheny	1,133,083	1,326,155	17.0 increase
Great Lakes	770,427	799,990	3.8 increase
Southeastern	1,054,767	1,055,461	.1 increase
Middle-Western	1,107,501	1,379,175	24.5 increase
Trans-Missouri-Kansas	513,067	559,452	9.0 increase
Southwestern	583,336	616,322	5.7 increase

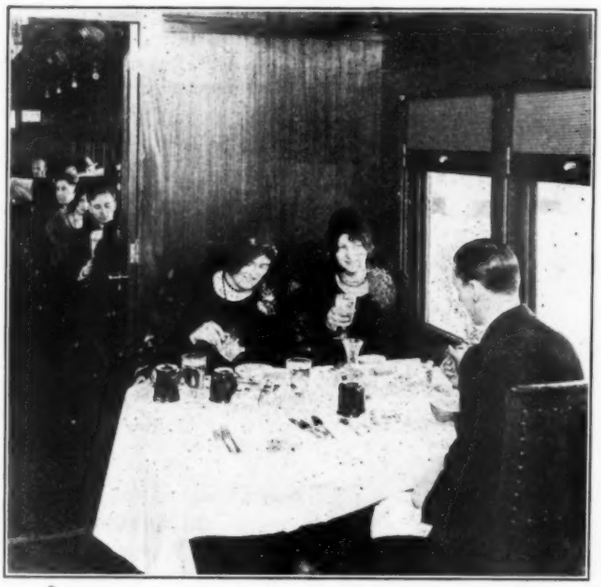
The large comparative increase in the Middle-Western and the Allegheny regions over last year is due largely to the anticipated heavier movement of coal this year as but little coal was shipped from those districts in 1927 owing to the suspension of activities at many bituminous mines.

Of the 29 commodities, it is estimated that increases in transportation requirements will be required for 20. The estimate by commodities follows:

Commodity	Carloadings Actual 1927	Carloadings Estimated 1928	Estimated Per Cent Inc.	Estimated Per Cent Dec.
Grain, all	481,029	499,603	3.9	
Flour, Meal & Other Mill Products	233,466	261,497	12.0	
Hay, Straw & Alfalfa	76,441	75,612		1.1
Cotton	87,663	62,997		28.1
Cotton Seed & Products	47,298	27,612		41.6
Citrus Fruits	14,829	13,589		8.4
Other fresh fruits	160,697	172,496	7.3	
Potatoes	54,530	58,163	6.7	
Other fresh vegetables	81,189	85,595	5.4	
Live stock	373,129	356,182		4.5
Poultry & Dairy Products	28,150	29,256	3.9	
Coal and Coke	2,473,313	2,820,897	14.1	
Ore and Concentrates	817,261	839,352	2.7	
Clay, Gravel, Sand and Stone (incl. Gypsum, Crude and Powdered)	1,207,099	1,274,183	5.6	
Salt	14,868	14,077		5.3
Lumber & Forest Products	977,370	1,000,496	2.4	
Petroleum & Petroleum Products	593,889	653,174	10.0	
Sugar, Syrup, Glucose & Molasses	56,055	56,014		.1
Iron and Steel	433,823	454,760	4.8	
Castings, Machinery and Boilers	65,778	67,875	3.2	
Cement	272,358	284,234	4.4	
Brick and Clay Products	194,898	189,037		3.0
Lime and Plaster	67,512	69,131	2.4	
Agric. Implements & Vehicles other than Automobiles	38,978	42,355	8.7	
Automobiles, Trucks and Parts	210,741	244,510	16.0	
Fertilizers, All kinds	75,247	73,243		2.7
Paper, Printed Matter & Books	73,915	78,780	6.6	
Chemicals & Explosives	60,236	63,063	4.7	
Canned Goods—All Canned Food Products (Includes Catsup, Jams, Jellies, Olives, Pickles, Preserves, etc.)	41,975	42,985	2.4	
Total	9,313,737	9,910,768	6.4	

Northern Pacific Combination Cafe Coaches

TO provide eating accommodations en route on relatively short-run local trains and thus afford a service not rendered by highway motor coaches, the Northern Pacific is building six combination cafe coaches at the Como shops, St. Paul, Minn. These cars, remodeled to include cafe facilities at one end of a standard coach, are also available for use where the



Interior of the Northern Pacific Cafe Coach

service of a complete dining car is not required. They will be placed in service on day runs between Minneapolis, St. Paul and Duluth; Spokane, Wash., and Lewiston, Idaho; and Seattle and Yakima, Wash.

In the design of the car, a partition with a swinging door separates the 12-ft. 4-in. dining room from the coach section proper, and the kitchen occupies 11 ft. 10 in. adjacent to the dining room. The dining room has a capacity for seating and serving 12 persons at one time and permits day coach passengers to obtain, at a reasonable cost at any time, anything from a sandwich to a full meal.

The cars are provided with a large conveniently-arranged, well-lighted and ventilated sanitary kitchen. The appointments are especially designed to include the equipment necessary for the efficient serving of the best food, kept under the most sanitary conditions. Kitchen floor and walls up to a height of about four feet are covered with Monel metal and the floor is provided with Duralumin floor racks to promote cleanliness and sanitary floor conditions.

Live steam is provided in the sinks for the purpose of sterilizing all dishes, heating water, etc. Drinking water is carried in five-gallon glass bottles and dispensed through an aluminum holder which holds the bottle in an inverted position, the holder being provided with

sanitary faucet and so arranged as to eliminate to a great extent breakage of glassware.

Suitable lockers, cupboards, pie lockers, vegetable lockers, fish and meat drawers, sink and suitable drain board and Monel-metal-covered work tables promote expeditious service. A large refrigerator is provided, serviced through the roof, with the ice compartment extending down to the floor. It is of the syphon type, insuring free circulation of cold dry air. Refrigerator shelves are removable, being of wire netting construction to insure easy maintenance in a sanitary condition.

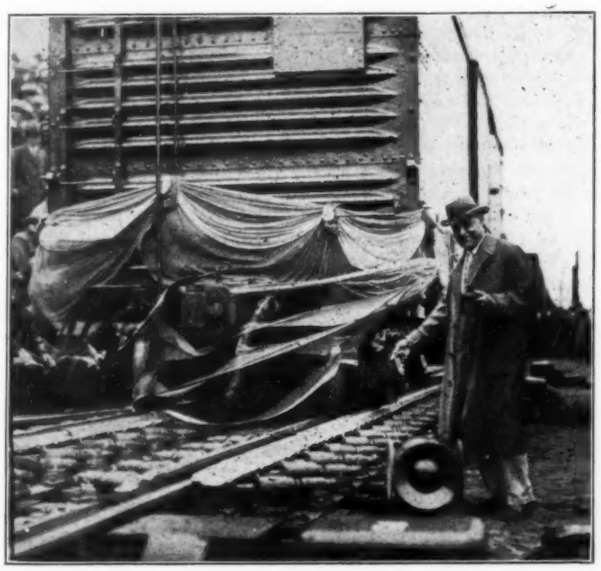
The kitchen range is of the type usually installed in buffet and business cars. The kitchen is ventilated by means of a motor-driven horizontal exhaust fan, located

Looking from the Coach Section into the Dining Room

in the upper deck. This causes the fumes from the kitchen to be exhausted through the ventilator and not permitted to enter the passenger compartment or dining room.

A substantial linen storage locker is provided outside of the kitchen for the convenient use of attendants.

* * *



President Hannauer Dedicating the New B. & M. Classification Yards at Somerville, Boston, Mass.

Looking Backward

Fifty Years Ago

The director's car "Bellaire" of the Central Vermont was sold at St. Albans, Vt., for town taxes recently for $1,300. The original cost of the car was $25,000.—*Railway Age,* July, 1878.

Following the sale of the Chesapeake & Ohio at Richmond, Va., on April 2, to the Committee of Purchase and Reconstruction appointed by the bondholders, for $2,500,000, a three-year receivership was brought to a close on July 1 when the receiver turned over the property to the reorganized company.—*Railroad Gazette,* July 5, 1878.

The receiver of the Indianapolis, Cincinnati & Lafayette (now part of the Cleveland, Cincinnati, Chicago & St. Louis) calls attention to the growing practice of paying train men according to their mileage rather than a fixed sum per month. By this means, he states, the I. C. & L. has gradually reduced its force until only enough men are employed to actually do the work. Whenever it is necessary to double up on the runs the men do not grumble, but rather like it, as they earn so much more money.—*Chicago Railway Review,* July 6, 1878.

Twenty-Five Years Ago

Frank Walters, assistant division superintendent of the Chicago & North Western at Kaukauna, Wis., has been promoted to division superintendent at Sioux City, Iowa.—*Railroad Gazette,* July 10, 1903.

On July 7 the San Pedro, Los Angeles & Salt Lake (now the Los Angeles & Salt Lake) purchased from the Oregon Short Line all of its line south of Salt Lake City, Utah, about 525 miles, for $10,000,000.—*Railway and Engineering Review,* July 11, 1903.

George LeBoutellier, assistant engineer of the North West System of the Pennsylvania, has been promoted to division engineer of maintenance of way, with office at Wellsville, Ohio.—*Railroad Gazette,* July 10, 1903.

The St. Louis, Brownsville & Mexico (now part of the Gulf Coast Lines) has awarded a contract to a construction company in Illinois for the building of a railroad from a point on the Texas-Mexican to Brownsville, Tex., 140 miles.—*Railway and Engineering Review,* July 4, 1903.

House wreckers in the employ of the Pennsylvania have begun the work of demolishing the four blocks of houses and buildings occupying the site for the proposed new passenger station at Thirty-second street and Ninth avenue, New York. There are about 400 houses to be removed and demolished.—*Railway and Engineering Review,* July 4, 1903.

The task of constructing the Rock Island-Lake Shore 12-story office building and passenger station at Chicago will be completed on July 12 when it will be opened to train operation. The destruction of the building which previously occupied the site, was begun in January, 1902. The Nickel Plate will be the third railroad to use the station.—*Railway Age,* July 10, 1903.

Ten Years Ago

On June 24 the Railroad Administration announced the relinquishment from federal control of nearly 2,000 short line railroads whose control was regarded as not needful or desirable.—*Railway Age,* July 5, 1918.

H. A. Scandrett, assistant director of traffic and commerce counsel of the Union Pacific, with office at Chicago, has been appointed traffic assistant to the regional director of the central western railroads, with headquarters as before at Chicago.—*Railway Age,* July 5, 1918.

Work on Chicago's $33,000,000 union station project has been suspended until after the war, according to a decision reached at a conference between the city council's committee on railway terminals and representatives of the Chicago Railway Terminal Commission and the Railroad Administration.—*Railway Review,* July 6, 1918.

Communications and Books

Transportation for Investment

BANGOR, ME.

TO THE EDITOR:

While the matter of New Road and Equipment Classification for investment accounting is under consideration it would seem that some attention might well be given to the matter of establishing minimum amounts chargeable to capital account to cover transportation of construction materials over the carrier's own line, in transportation service trains.

The present accounting classification, and all tentative new ones that I have yet seen, simply provide that the investment accounts shall be charged with a fair allowance representing expense to the carrier for such transportation, but no rates or methods of arriving at amounts is prescribed.

The only official instuctions bearing upon the subject that have ever come to my notice are contained in a circular issued by the Interstate Commerce Commission, Bureau of Valuation, over the signature of Director Prouty under date of March 1, 1920, which provide that the amount to be charged for transporting material shall not exceed seven mills per ton mile. This was made retroactive to June 30, 1916, and referred to the recording of property changes under Valuation Order No. 3. Later instructions, dated November 1, 1922, issued over the signature of Acting Director Staples, quote the same rate on materials, but with the permissive feature of allowing carriers to use a higher rate upon approval of the Commission's supervisor of accounts.

Since no minimum is established as to the amount of money to be charged under any one project to cover this item of transportation, the literal following of instructions often leads to entries in absurdly small figures. It is possible that some roads may have adopted minimum charges to investment projects, but if done without specific approval of the Commission, it would seem as though any examiner who was inclined to be insistent upon a strict following of the letter of the law might create a rather unpleasant situation and possibly force upon the carrier the task of correcting and revising its accounts and records over a period of years.

It is, of course, appropriate and necessary that the Road and Equipment accounting instructions be broad enough to cover large construction projects, but I believe that they could well be made a little more pliable in order to better adapt themselves to the circumstances that constantly arise in connection with the little every day affairs of addition and betterment work, and the establishing of reasonable minimum amounts for items that are more or less estimates anyway, is one of the best methods of making the rules more workable from a practical standpoint.

The one hundred dollar minimum project rule for addition and betterment charges now in effect, and the proposed one for computing interest during construction on carrier's own funds as it appears in late tentative drafts of the new accounting classification, (see Bulletin No. 113, R.A.O.A.), are steps in the right direction. Why not go a little further and prescribe definite methods and minimums for these estimated transportation charges?

W. A. R.

New Books

The Engineering Index. 1927. 898 pages, 6¾ in. by 9½ in. Price $8.50, to A. S. M. E. members $7.50. Published by The American Society of Mechanical Engineers, 29 West Thirty-ninth street, New York.

The Engineering Index is a familiar volume to all those who are connected with any of the engineering professions. It has been published since 1884. With this volume, however, the American Society of Mechanical Engineers brings to a close another period in the history of the publication. The system, which has been used in previous years, of indexing only the most important articles in somewhat limited fields of engineering, was discarded with the inauguration, the first of this year, of the Society's new weekly card index service. This new service involves the reviewing of a larger number of publications from which will be indexed a greater percentage of material. It is expected that approximately three times as many items as heretofore will be prepared. Future annual volumes of the index, therefore, will be decidedly larger in size.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Advertising for Community Promotion, by Wroe Alderson. Domestic commerce series no. 21 of the Dept. of Commerce. "Railroads" (discussion of scope and value of development work) p. 14-15. "Influence of railroads" p. 23. 47 p. Pub. by U. S. Govt. Print. Off., Washington, D. C., 10 cents.

Proceedings of Railroad Forest Protection Conference, Harrisburg, Dec. 6 and 7, 1927. Twenty-two papers on various aspects of the relation of railroads to forestry in Pennsylvania, and issued as Bulletin 45 of the State Forest and Waters Dept. 132 p. Pub. by Commonwealth of Pennsylvania Department of Forests and Waters, Harrisburg, Penna.

Some Basic Principles of Railway Transportation. Concise discussions of railroad history and relationships, the organization and functions of the departments of a railway, and of the details of the railway plant. 48 p. Pub. by Illinois Central System, Chicago, Ill. *Apply.*

Traffic Density by States and Other Geographical Divisions, compiled by Bureau of Statistics, Interstate Commerce Commission. Summary based on replies to Statistical Series Circular no. 18 calling for a statement for the calendar year 1927 of the revenue traffic carried by states and other designated geographical divisions together with the mileage operated in each. Statement no. 28105. 13 p. Pub. by Interstate Commerce Commission, Washington, D. C. *Apply.*

Periodical Articles

The Booster, by O. Bulleid. "Historical development" (including experiments in 1843 and 1863) p. 240-243. "Improvements in design" p. 261-271. Journal of the Institution of Locomotive Engineers, March-April 1928, p. 274-291.

The Embrittlement of Boiler Plate, by S. W. Parr and Frederick G. Straub. Map of water districts, and illustrations of affected plate. Mechanical Engineering, July 1928, p. 523-528.

The Great Northwest, by Howard Elliott. A review of its history for the past 50 years and a forecast of its prospects stressing the part played by the railroads. Editorial comment, p. 18. American Review of Reviews, July 1928, p. 40-46.

High Class Security, by A. W. Somerville. A railroad story by an author whose work has stimulated an intensive study of the railroad language by public library staffs and public information bureaus. Saturday Evening Post, June 30, 1928, p. 18-19, 132, 134, 137.

The St. Lawrence Waterway—A Symposium, by William Kelly, E. A. Forward and John P. Hogan. Mechanical Engineering, July 1928, p. 509-518.

Some Applications of Radio to the Science of Transport, by Robert R. Pecorini. Radio in connection with road transport, railways, detecting flaws in railway track, marine and air transport. Journal of the Institute of Transport, June 1928, p. 414-421.

Correction: In the June 23, 1928 Booklist the reference to the American Magazine article "Who Said the Day of Railroad Giants is Over?" should read *July* 1928 instead of June.

Odds and Ends of Railroading

Notice to Box Car Thieves

The Canadian National Police Department revolver team of Winnipeg, Man., has reason to be proud this year. Not only did they win the McLimont shield, which is emblematic of the revolver championship of Manitoba, but, in the provincial championship tournament, they also came out on top.

Swelling the Conscience Fund

On June 8 Charles Donnelly, president of the Northern Pacific, found in his mail an envelope containing $1,000 in currency. The only explanation which accompanied the remittance was a six-word, unsigned note, which read: "For undercharge in freight years ago."

Pounders of the Key

How many railway officers were once telegraph opertaors? The Norfolk & Western claims an unusually high percentage in this regard. On that line, the ex-telegraphers include the vice-president in charge of operation, a general superintendent, the chief clerk to the vice-president, the chief clerk to the general manager, a general agent, two superintendents of terminals, the assistant treasurer, the general freight agent, the general coal freight agent, a trainmaster, a terminal trainmaster and four assistant trainmasters.

Five Score and One

The Champlain & St. Lawrence, the first railway to operate passenger service in Canada, was opened for traffic in July, 1836, or 92 years ago. Viewed from the standpoint of railway progress, this seems eons ago, yet it can't be so long, really, since there is a man living in Canada today who not only saw the line opened, but retains a vivid memory of the occasion. He is Senator G. C. Dessaulles, of St. Hyacinthe, Que., oldest member of the Canadian Upper House, who was born on September 29, 1827.

Courtesy

A little train we sometimes take, to a country place we know, becomes a very friendly train when it gets north of where the 20 min. commuters depart. Only a few passengers remain, and mostly these are old friends of the conductor, a wise and kindly man. He inquires after their children, listens to them all tell how their gardens are coming on, and has a wealth of sound advice on many things. He knows what to do for poison ivy and for cinders in the eye and for drooping spirits. Recently he admonished us on the evils of reading newspapers, and particularly risking the eyesight upon them, in a fading light, and pointed out, as a far better thing to study, the first fireflies of the season lighting up in the fields. By comparison with psychoanalysts we have known, our gemal conductor seems to us to bring considerably more repose to the soul.—New Yorker.

An Artist Who Earned His Fee

"Not many national advertisers can claim that their first illustration for an advertisement was created by a National Academy man," says H. L. Stephen in the New York Evening Post, "but such is the case with 'The First Roundhouse of the D., L. & W. Railroad at Scranton,' painted by George Inness in 1855 and recently sold at auction by the American Art Galleries for a sum stated to be about $1,400. Inness received the large sum of $75 for the painting, and if his letters and comments are to be believed he more than earned that amount.

"Mr. Inness accepted the commission from the president of the railroad some time in the summer of 1855 and went to a place then called St. John, N. J., by stage. From there he walked to Stroudsburg, Pa., leaving his baggage to come by stage. Inness wrote his wife in September, 1855, asking for money to carry on in somewhat this manner:

"I left for Scranton with the promise from the stage proprietor that it (the baggage) should be sent to me the next day. It has not come and I shall now be at the expense to get it. I had to buy a shirt and other things, so that my money is almost gone. Send me $10, I fear I shall need it.

"Arriving at Scranton Inness found that the railroad had only one track, a roundhouse and four locomotives and trains. He selected a view on a slight slope that showed the roundhouse in the middle of the valley with a train puffing in the left foreground. He submitted his painting to the then president of the Delaware, Lackawanna & Western Railroad, only to find that the president wanted some of his vision in the painting. In fact he wanted all four locomotives and trains showing. Inness rebelled, but a hungry wife and children made him think better of the mutiny, so he painted in the trains.

"Again he submitted his painting, again an objection was raised by the president. The locomotive in the foreground did not have D., L. & W. painted on it. That raised another question of ethics in the mind of the artist and again he rebelled. Finally the president stated 'No sign on the locomotive, no check.' The artist was forced to forego his temperament for the sake of his family. The picture was accepted. Years later Inness found the canvas in an old curiosity shop in Mexico City."

"It Pays to Advertise"

"I was quite amused by this response to our ad in your paper," writes an advertiser in the *Railway Age*, "and I am sure you will smile as you read the different paragraphs." The letter to which he refers, offering him a business opportunity of large proportions, is given below, without any editorial modifications:

"Dear Sir's

noting your add in the Railway Edge. of you being in the Malleabile buisness. and having a patent Railway Tie. now in office pending an Isue. a metalbase with a Concreat filling. doesnot use a spike nor a bolt to hold the rails in ther places, they set in a solid gruve on the outside and are fastened with an excentric fastening on the inside

"and are made in two sections bolted in center with six or as many bolts as nessary to hold. it makes a saving of every fifth tie. four of these fills the exact space of five wood ties. and they are fire proof, a labor saving device a safety for the general public. a life long tie and a proffitable buisness to be added to any interprise or manufactur,

"noting your add in the railway edge. is the reason for calling your attention to this subject, as it is a practiable device and is going to be a money making proposition for some company, and as you well know the one who gets the lead on this proposition and takes the start has all the advantages of the rest who seak to gain posesion later on. as you will note this is not a tested article yet.

"but open for investigation, so on hearing from you people you shall have a chance and shall be cept on our files of corespondance, for this is worth a mans time and attention as well as his money and more to him than his money for it will return great value in return four fold for every dollar invested. so as to speak take and invest this proposition for delay is wast procastination is losing, for you are aware what that is.

"trusting this apeals to your manufacturing buisness, as it is spesifide in spesifications to be made of malleable iron or any substantal metal. trusting to place you people on our coresponding buisness plans, Youres Very Respectfully."

NEWS *of the* WEEK

SENATOR FRANK R. GOODING, ranking Republican member of the Interstate Commerce Committee of the United States Senate, died at his daughter's home at Gooding, Idaho, on June 24. He was originally an advocate of a rigid long and short haul clause in the Interstate Commerce Act, but more recently he proposed an amendment to Section Four, which would have specifically prohibited future fourth section relief in the case of water competition via the Panama Canal. His bill to provide for this change was favorably reported to the Senate at the past session of Congress but was not acted upon.

Seven Hundred Safety Men

Track forces of the Colorado division of the Union Pacific on June 11 attained what is believed to be a national record for safety among employees engaged in that kind of work when they completed a year of operation without an injury to an employee resulting in a single day's loss of time. During the year ending on June 11 the 700 men employed in the track forces on the division worked 1,900,200 man-hours. This division comprises 638 miles of main line and 246 miles of branch line, all but five miles of which is single track. The men involved in this record include a division general roadmaster, six district roadmasters, 117 section gangs and from one to three extra gangs.

Car Department Officers Association to Meet in St. Louis

The Railway Car Department Officers' Association, which was formerly the Chief Interchange Car Inspectors' and Car Foremen's Association, is holding its annual convention this year at the Statler Hotel, St. Louis, Mo., September 11 to 13, inclusive. This is the first time for many years that this association has held its annual convention in any city other than Chicago. The program which is now being arranged includes addresses by Col. B. W. Dunn, chief inspector, Bureau of Explosives; Henry Miller, president, Terminal Railroad Association of St. Louis, and R. H. Aishton, president, American Railway Association.

R.S.M.A. Executive Committee

Several new members of the Executive Committee of the Railway Supply Manufacturers' Association were elected by different districts prior to the annual meeting of the association at Atlantic City on June 23, 1928. Because of a misunderstanding, the election of the delegate from the seventh district has since been declared void by the Executive Committee of the R. S. M. A., and F. J. O'Brien, of the Globe Seamless Steel Tubes Company, Milwaukee, Wis., has been appointed to fill the vacancy.

Gold Buttons for Pennsylvania Veterans

Officers and employees of the Pennsylvania Railroad (both those in active service and those who have been retired) who have served the road 50 years, are to be presented by the company with gold buttons. The button, to be worn on the lapel of the coat, is in the form of a triangular shield of gold bearing the words "Service

Fifty Years." The total number of persons eligible, 954, includes 224 still active in the service and 730 who have been pensioned.

Among the recipients of buttons who have seen the longest periods of service are: W. E. Meagher (engineman) 58 years, retired last month; L. C. Bryan, George P. Levan and C. F. Hevell, each 57 years.

Baldwin Ceremonies at Eddystone

An elaborate program commemorating the removal of the plant of the Baldwin Locomotive Works from Broad and Spring Garden streets in Philadelphia, to Eddystone, Pa., was held at Eddystone on June 28. A large grandstand was erected adjacent to the new eight-story administration building and was filled with employees, and a great number of railroad, railway supply and public representatives from all parts of the country. Special trains for the guests were operated from New York, Philadelphia, and from Atlantic City, many of the members of the Mechanical Division of the American Railway Association coming from the latter point.

Samuel M. Vauclain, president of the company, presided at the celebration, and in his address emphasized the determination of the company to secure business from foreign countries. His company will continue to pay high wages, but will successfully compete with countries where low wages are paid, because of greater plant operating efficiency. Other addresses were made by James J. Davis, Secretary of Labor, and by Judge Alfred Dutton MacDade of the Delaware County Courts.

No Railway Rebuttal in Freight Trucking Case

Since counsel for railways involved in the Interstate Commerce Commission investigation into freight trucking in New York has notified the Commission that they would present no evidence in rebuttal the hearings did not reconvene as planned on July 5. When direct testimony and cross examination were concluded on June 11, Examiner Harry C. Ames, who conducted the proceeding, granted the request of railway counsel for delay to decide on the question of rebuttal and announced that if no time for rebuttal were requested the hearing would be closed. The case opened on May 22 and evidence presented covered all phases of railway freight trucking practices, i.e., constructive and inland station operations and trucking in lieu of lighterage in the New York terminal district.

Counsel for the carriers and the several other participants who include the Port of New York Authority, the Merchants' Association of New York, and representatives of shipping, terminal, trucking

and community interests will file briefs on August 15.

Twenty-Two Passengers Killed on the London and North Eastern

Press dispatches report a collision, late on the evening of June 27, at Darlington, England, at which the two leading coaches of a passenger train were wrecked and 22 persons were killed and 47 injured, nearly all of them being passengers in one or the other of these coaches. The train was returning to Newcastle from the races at Scarborough, and 12 of the victims were women. The collision was with a freight train and appears to have occurred in or near station yard limits, while the freight was standing or was moving at low speed. The point of collision was within a quarter mile of the Darlington station where stands the historic Stephenson locomotive with which was opened the first British passenger railway, the Stockton & Darlington, now a part of the North Eastern.

Development Association Meets

At the meeting of the American Railway Development Association at Miami, Fla., on May 9, 10 and 11, H. W. Byerly, general immigration agent of the Northern Pacific was elected president and M. C. Burton, general industrial agent of the Atchison, Topeka & Santa Fe, vice-president. Addresses were made by H. N. Rodenbaugh, vice-president of the Florida East Coast on the "Search for Traffic" in which he emphasized the need for development work which will lead toward revenue-producing traffic. He also told of the efforts of the Florida East Coast to increase truck crops and the effect this has on other industries looking for cheaper living costs for employees.

Judge J. L. Doggett, general counsel of the Celotex Company, described the work which his company is doing in the development of a sugar cane with a larger sugar content and a stronger fiber which can be used in the manufacture of that company's product. E. L. Taylor, assistant vice-president of the New York, New Haven & Hartford, presented a paper on standard practices in development work which is a preliminary step in the production of a manual which can be used by all railroads as a uniform plan for development work.

The semi-annual meeting will be held in Chicago, at the Congress Hotel, on December 6 and 7, 1928. The next annual meeting will be held at Houston, Tex., on May 22, 23 and 24, 1929.

One Locomotive Moves 189 Cars Over Division

The Virginian Railway reports a record movement for westbound freight trains. It was on Sunday, June 24, and was from Victoria, Va., to Roanoke, 123 miles, when locomotive No. 806 hauled nine loaded and 180 empty cars through in eight hours, ten minutes. This train was 7,848 ft. long; weight, 4,500 tons. It left Victoria at 9:15 a.m. and arrived at Roanoke at 5:25 p.m. (15.06 m.p.h.). The actual running time, with delays deducted, was seven hours, six minutes, (17.32 m.p.h.) the delays being as follows: Fifteen minutes, Victoria, double over; 19 minutes at Phenix to meet an eastbound train; 15 minutes at Seneca for coal and water and 15 minutes because stopped by signals at the Norfolk & Western interlocking, Roanoke.

Locomotive No. 806 is a Mallet, 2-10-10-2, class AE, weight 684,000 lb.; weight on drivers 617,000 lb.; tractive effort 147,200 lb. There are in the 123 miles between Victoria and Roanoke, over 200 curves. The grade ranges from level to 0.2 per cent ascending, except for about 25 miles of the distance where the ascent is 0.6 per cent, the curves being compensated.

These Mallet locomotives move coal trains eastward weighing 13,500 tons, the maximum grade being 0.2 per cent.

The men making the run on June 24 were engineman H. A. Kingrea, fireman C. W. Cummings, conductor J. G. Jones, brakemen C. C. White and L. G. Flint.

Central of Georgia Hospital

The large hospital of the Central of Georgia at Savannah, Ga., has completed its first year of service and the report (for 11 months) is highly encouraging. In this time, 1173 employees were treated at the hospital and 93 were treated at outside or contract hospitals, the total, 1,266, being equal to 13 per cent of the total number of persons employed by the company. The employees participate in the support of the hospital by contributing each 75 cents a month; and there is no charge whatever for treatment, even in the case of major surgical operations. Of "contract hospitals" there are 16, and any injured employee can, in emergency, find hospital relief within a moderate distance; and there are 152 company surgeons, so that any employee can generally find a surgeon within 10 miles.

In addition to hospital treatment, there were 4,700 calls made upon company physicians by employees not requiring hospital service. The patients in the hospitals spent there a total of 15,557 days, an average of 13 days per patient.

Four Railroads Increase Wages of Clerks and Signalmen

Station employees on the Union Pacific System and clerks and station employees on the Chicago, St. Paul, Minneapolis & Omaha who are members of the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees have been granted wage increases which were effective during the past month. In each case an agreement was reached between the company and the brotherhood while mediation and arbitration proceedings were pending.

On the Union Pacific, the increases were effective on June 1 and are applicable to 1,468 employees. The new rates remain in effect until May 31, 1929, and thereafter subject to 30 days' notice by either party of a desire to terminate the agreement. Two cents an hour will increase to foremen, sub-foremen, assistant foremen, gang foremen and leading deliverymen at stations; freight truckers, coopers, stowers, leaders, taggers, callers, sealers, veri-check collectors, refrigeration inspectors, freight loading inspectors and warehousemen at storehouses and freight stations; passenger directors, gatemen, information bureau attendants, baggage and mail handlers, and chauffeurs, truck drivers, tractor drivers and tractor operators. Helpers, deliverymen and supplymen in store and dining car and hotel departments were granted an increase of 1 cent an hour. No increase was allowed elevator operators, station attendants, laborers, gardeners, watchmen, ushers, matrons, janitors, porters and sweepers.

The increase on the Omaha, which affects 1,420 clerks, other office employees, freight handlers, stowers and station and storehouse employees, was effective on June 16 and will apply until December 31, 1929. It involves an annual increase of $67,500 in the wages now paid, to be distributed among the employees by joint arrangement between the brotherhood and representatives of the railway.

As a result of mediation proceedings on the New York, Chicago & St. Louis all of the employees in the signal department—about 115 men—will, effective September 1, receive increases in their present rates of pay. Wages of signalmen, signal maintainers and their helpers will be increased 3 cents an hour and those of signal foremen will be increased 5 cents an hour.

A board of arbitration has granted 77 men in the signal department of the Nashville, Chattanooga & St. Louis a wage increase which is retroactive to March 29. Leading signal maintainers, signal maintainers and signalmen will receive an increase of 4 cents an hour and assistant signal maintainers, assist-signalmen and signal helpers will receive an increase of 3 cents an hour.

Railway Earnings For May

Class I railroads in May had a net railway operating income of $88,179,013 which, for that month, was at the annual rate of return of 4.71 per cent on their property investment, according to reports compiled by the Bureau of Railway Economics. In May, 1927, the net railway operating income was $86,007,707, or 4.70 per cent.

Operating revenues for the month amounted to $510,714,148, compared with $519,569,844 in May, 1927, or a decrease of 1.7 per cent. Operating expenses totaled $381,836,287, a decrease of 2.5 per cent. Taxes amounted to $30,757,178, a decrease of 4.5 per cent. This brought the total tax bill for the first five months in 1928 to $150,325,150, a decrease of $2,921,633 or 1.9 per cent.

Twenty-eight Class I railroads operated at a loss in May, of which nine were in the Eastern district, five in the Southern and fourteen in the Western.

For the first five months in 1928 the net railway operating income was $376,027,819, at the annual rate of 4.41 per cent, as compared with $385,045,081 or 4.62 per cent in the corresponding period of last year.

Operating revenues for the five months amounted to $2,404,382,639, a decrease of 4.1 per cent. Operating expenses totaled $1,830,579,871, a decrease of 4.7 per cent.

Net railway operating income by districts for the first five months with the percentage of return on an annual basis was as follows:

New England Region	$14,442,794	5.00%
Great Lakes Region	71,524,548	5.10%
Central Eastern Region	83,163,454	4.79%
Pocahontas Region	26,036,430	6.52%
Total Eastern District	195,167,226	5.10%
Total Southern District	54,876,560	4.18%
Northwestern Region	31,029,623	3.06%
Centralwestern Region	61,692,248	3.85%
Southwestern Region	33,262,162	4.28%
Total Western District	125,984,033	3.71%
UNITED STATES	$376,027,819	4.41%

The net railway operating income of the Class I railroads in the Eastern District during the first five months totaled $195,167,226 at the rate of 5.10 per cent. For the same period in 1927 their net railway operating income was $211,501,362 or 5.65 per cent. Operating revenues totaled $1,191,877,303, a decrease of 6.5 per cent, while operating expenses totaled $903,410,061, a decrease of 6.7 per cent. For the month of May the net railway operating income was $51,964,813 compared with $51,299,288 in May 1927.

Class I railroads in the Southern District for the five months had a net of $54,876,560 at the rate of 4.18 per cent. For the same period in 1927, the net amounted to $60,025,093, at the rate of 4.70 per cent. Operating revenues for the five months amounted to $327,953,637, a decrease of 6.3 per cent, while operating expenses totaled $248,054,953, a decrease of 6 per cent. The net in May totaled $10,733,673, while in the same month in 1927 it was $11,599,530.

Class I railroads in the Western District for the five months had a net of $125,984,033, or 3.71 per cent. For the first five months in 1927, they had a net of $113,518,626 or 3.42 per cent. Operating revenues for five months were $884,551,699, an increase of two-tenths of one per cent, while operating expenses totaled $679,114,857, a decrease of 1.5 per cent, the net in the Western District amounted to $25,480,527. The net railway operating income of the same roads in May, 1927, totaled $23,108,889.

	Month of May 1928	1927
Total operating revenues	$510,714,148	$519,569,844
Total operating expenses	381,836,287	391,555,475
Taxes	30,757,178	32,199,152
Net railway operating income	88,179,013	86,007,707
Operating ratio—per cent	74.77	75.36
Rate of return on property investment—per cent	4.71	4.70
	Five months ended May 31st	
Total operating revenues	$2,404,382,639	$2,507,487,897
Total operating expenses	1,830,579,871	1,922,290,226
Taxes	150,325,150	153,246,783
Net railway operating income	376,027,819	385,045,081
Operating ratio—per cent	76.14	76.66
Rate of return on property investment—per cent	4.41	4.62

Meetings and Conventions

The following list gives names of secretaries, date of next or regular meetings and places of meetings.

AIR BRAKE ASSOCIATION.—T. L. Burton, 165 Broadway, New York City. Exhibit by Air Brake Appliance Association.

AIR BRAKE APPLIANCE ASSOCIATION.—Fred Venton, Crane Company, 836 So. Michigan B'lv'd., Chicago. Meets with Air Brake Association.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—J. D. Gowin, 112 W. Adams St., Chicago.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 S. Michigan Ave., Chicago.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Annual meeting, October, Hotel Broadmoor, Colorado Springs, Colo.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—J. Rothschild, Room 400, Union Station, St. Louis, Mo. Next annual convention, 1929, Mexico City.

AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—L. M. Jones, Supt. of Sleeping and Dining Cars, C. M. St., P. & P., Chicago. Annual meeting, October, 1928, Havana, Cuba.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—J. W. Welsh, 292 Madison Ave., New York. Annual convention, Sept. 22-28, Cleveland Public Auditorium, Cleveland, Ohio.

AMERICAN RAILROAD MASTER TINNERS' COPPERSMITHS' AND PIPE FITTERS' ASSOCIATION.—C. Borcherdt, 202 North Hamlin Ave., Chicago.

AMERICAN RAILWAY ASSOCIATION.—H. J. Forster, 30 Vesey St., New York, N. Y.

Division I.—Operating—J. C. Caviston, 30 Vesey St., New York.

Freight Station Section (including former activities of American Association of Freight Agents)—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago.

Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York.

Protective Section (including former activities of the American Railway Chief Special Agents and Chiefs of Police Association)—J. C. Caviston, 30 Vesey St., New York.

Safety Section.—J. C. Caviston, 30 Vesey St., New York.

Telegraph and Telephone Section (including former activities of the Association of Railroad Telegraph Superintendents)—W. A. Fairbanks, 30 Vesey St., New York. Next meeting, Sept. 18-20, 1928, St. Francis Hotel, San Francisco.

Division II.—Transportation (including former activities of the Association of Transportation and Car Accounting Officers).—G. W. Covert, 431 South Dearborn St., Chicago.

Division III.—Traffic, J. Gottschalk, 143 Liberty St., New York.

Division IV.—Engineering, E. H. Fritch, 431 South Dearborn St., Chicago, Ill. Annual convention, March 5-7, 1929, Chicago. Exhibit by National Railway Appliances Association.

Construction and Maintenance Section.—E. H. Fritch.

Electrical Section—E. H. Fritch.

Signal Section (including former activities of the Railway Signal Association)—H. S. Balliet, 30 Vesey St., New York.

Division V.—Mechanical (including former activities of the Master Car Builders' Association and the American Railway Master Mechanics' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Exhibit by Railway Supply Manufacturers' Association.

Equipment Painting Section (Including former activities of the Master Car and Locomotive Painters' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago. Next meeting, Sept. 11-13, Windsor Hotel, Montreal.

Division VI.—Purchase and Stores (including former activities of the Railway Storekeepers' Association).—W. J. Farrell, 30 Vesey St., New York, N. Y.

Division VII.—Freight Claims (including former activities of the Freight Claims Association).—Lewis Pilcher, 431 South Dearborn St., Chicago, Ill. Annual meeting, 1929, Washington, D. C.

Car Service Division.—C. A. Buch, 17th and H Sts., N. W., Washington, D. C.

Motor Transport Division.—George M. Campbell, American Railway Association, 30 Vesey St., N. Y. C.

AMERICAN RAILROAD BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Annual convention, Oct. 23-25, 1928, Statler Hotel, Boston. Exhibit by Bridge and Building Supply Men's Association.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—R. G. East, Agricultural Agent, Pennsylvania Railroad, Shelbyville, Ind. Semi-annual meeting, December 6-7, 1928, Congress Hotel, Chicago. Annual meeting, May 22-24, 1929, Houston, Tex.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—(Works in co-operation with the American Railway Association, Division IV). E. H. Fritch, 431 South Dearborn St., Chicago. Annual convention, March 5-7, 1929, Chicago. Exhibit by National Railway Appliances Association.

AMERICAN RAILWAY MAGAZINE EDITORS' ASSOCIATION.—Miss Page Nelson Price, Norfolk & Western Magazine, Roanoke, Va.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—G. G. Macina, C. M. & St. P. Ry., 11402 Calumet Ave., Chicago. Annual convention, Sept. 12-14, 1928 Hotel Sherman, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.—Secretary: E. H. Lunde, Federal Machinery Sales Co., Chicago.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—T. F. Whittelsey, Union Trust Bldg., Washington, D. C.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, Marion B. Richardson, Associate Mechanical Editor, *Railway Age*, 30 Church St., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—H. L. Dawson, 228 N. La Salle St., Chicago. Annual meeting, January 22, 1929, Louisville, Ky.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 413, C. & N. W. Station, Chicago. Annual convention, Oct. 23-26, Hotel Sherman, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

ASSOCIATION OF RAILWAY EXECUTIVES.—Stanley J. Strong, 17th and H Sts., N. W., Washington, D. C.

ASSOCIATION OF RAILWAY SUPPLY MEN.—C. F. Weil, American Brake Shoe & Fdy. Co., 332 So. Michigan Ave., Chicago. Meets with International Railway General Foremen's Association.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—W. D. Waugh, Detroit Graphite Co., St. Louis, Mo. Annual exhibit at convention of American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—C. R. Crook, 129 Charron St., Montreal, Que.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 626 North Pine Ave., Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.

CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.—J. W. Krause, 514 East Eighth St., Los Angeles, Calif. Regular meetings, second Friday of each month, 514 East Eighth St., Los Angeles.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—A. J. Walsh, 5874 Plymouth, Apt. 18, St. Louis, Mo. Meetings, first Tuesday of each month, except July and August, Broadview Hotel, East St. Louis, Ill.

CENTRAL RAILWAY CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 2nd Thursday each month, except June, July, August, Hotel Statler, Buffalo, N. Y.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.—(See Railway Car Department Officers' Association.)

CINCINNATI RAILWAY CLUB.—D. R. Boyd, 811 Union Central Bldg., Cincinnati, Ohio. Meetings, 2nd Tuesday in February, May, September and November.

CLEVELAND RAILWAY CLUB.—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Meetings, first Monday each month, except July, August, September, Hotel Hollenden, Cleveland.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Annual convention, August 21-22, 1928, Hotel Sherman, Chicago. Exhibit by International Railroad Master Blacksmith's Supply Men's Association.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.—W. W. Criley, Ajax Mfg. Co., Cleveland, O.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—L. G. Plant, 80 E. Jackson Blvd., Chicago. Exhibit by International Railway Supply Men's Association.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabash Ave., Winona, Minn. Annual convention, September 18-21, 1928, Chicago.

INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.—S. A. Witt, Detroit Lubricator

Co., 820 So. Michigan Blvd., Chicago. Meets with International Railway Fuel Association.

MASTER BOILER MAKER'S ASSOCIATION.—Harry D. Vought, 26 Cortlandt St., New York.

NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.—Roy M. Edmonds, 1252 Syndicate Trust Bldg., St. Louis, Mo.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—James B. Walker, 270 Madison Ave., New York. Annual convention, November 13, New Orleans, La.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, 1014 South Michigan Ave., Chicago. Exhibit at A. R. E. A. convention.

NATIONAL SAFETY COUNCIL.—Steam Railroad Section: C. F. Larson, supt. of safety, Missouri Pacific, St. Louis, Mo. Annual congress, Oct. 1, New York.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings 2nd Tuesday in month, excepting June, July, August and September, Copley-Plaza Hotel, Boston, Mass.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 3rd Friday in month, except June, July and August.

PACIFIC RAILWAY CLUB.—W. S. Wollner, 64 Pine St., San Francisco, Cal. Regular meetings 2nd Thursday in month, alternately in San Francisco and Oakland.

RAILWAY ACCOUNTING OFFICERS ASSOCIATION.—E. R. Woodson, 1116 Woodward Building, Washington, D. C.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 1406 Packard Bldg., Philadelphia, Pa. Annual meeting, November, 1928, Hotel Commodore, New York.

RAILWAY CAR DEPARTMENT OFFICER'S ASSOCIATION.—A. S. Sternberg, Belt Ry. of Chicago, Polk and Dearborn Sts., Chicago. Next meeting, Sept. 11-13, Hotel Statler, St. Louis, Mo. Supply Men's Association—B. S. Johnson, W. H. Miner, Inc., 209 S. LaSalle St., Chicago.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRICAL SUPPLY MANUFACTURER'S ASSOCIATION.—Edward Wray, 9 S. Clinton St., Chicago. Meets with Association of Railway Electrical Engineers.

RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.—F. W. Venton, Crane Co., 836 S. Michigan Ave., Chicago. Meets with Traveling Engineers' Association.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md. Next convention, Oct. 9-11, 1928.

RAILWAY SUPPLY MANUFACTURER'S ASSOCIATION.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meets with Mechanical Division and Purchases and Stores Division, American Railway Association.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A., Division I.

RAILWAY TREASURY OFFICERS ASSOCIATION.—L. W. Cox, 1217 Commercial Trust Bldg., Philadelphia, Pa. Annual meeting, October 11-13, Atlanta-Biltmore Hotel, Atlanta, Ga.

ROADMASTER'S AND MAINTENANCE OF WAY ASSOCIATION.—T. F. Donahue, Gen. Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Annual convention, September 18-20, 1928, Book-Cadillac Hotel, Detroit, Mich. Exhibit by Track Supply Association.

ST. LOUIS RAILWAY CLUB.—B. W. Rrauenthal, Union Station, St. Louis, Mo. Regular meetings 2nd Friday in month, except June, July and August.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, West Nyack (Rockland Co.), N. Y. Meets with A. R. A., Signal Section.

SOUTHEASTERN CARMEN'S INTERCHANGE ASSOCIATION.—Clyde Kimball, Inman Shops, Atlanta, Ga. Meets semi-annually.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3rd Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—R. G. Parks, A. B. & A. Ry., Atlanta, Ga.

TRACK SUPPLY ASSOCIATION.—A. H. Todd, Positive Rail Anchor Co., 80 E. Jackson Blvd., Chicago. Meets with Roadmasters' and Maintenance of Way Association.

TRAVELING ENGINEERS ASSOCIATION.—W. O. Thompson, Gen. Supt. R. S., New York Central, Buffalo, N. Y. Annual convention, September 25-28, 1928, Hotel Sherman, Chicago. Exhibit by Railway Equipment Manufacturers' Association.

WESTERN RAILWAY CLUB.—W. J. Dickinson, 189 West Madison St., Chicago. Regular meetings, 3rd Monday each month, except June, July and August.

Traffic

The New York State Public Service Commission has approved the issuance by the Long Island Railroad of 20-trip family tickets, good for one year, at fares based on 2.64 cents a mile.

The New York Westchester & Boston has been extended from its eastern terminus at Harrison, N. Y., eastward to Rye, one mile. This road is parallel to the New York division of the New York, New Haven & Hartford.

The Erie Railroad announces that smoking is now allowed in dining cars, the rule under which smoking is forbidden having been abrogated largely because of requests received from women passengers. The new dining cars on this road are said to have ventilators which change the air every three minutes.

The number of boys and girls traveling over the Boston & Maine to summer camps in Maine, New Hampshire and Vermont, during the last week in June, was estimated by officers of the road as above 16,000. From Boston, Springfield and Worcester, 301 extra Pullman cars and 107 coaches were used in traffic. The camps are numbered by the scores. The Flying Yankee, fast express from Boston to Portland is running in two sections, and this has been the case recently with several other trains.

The Oregon Public Service Commission has filed with the Interstate Commerce Commission a complaint asking it to order a reduction, under the provisions of the Hoch-Smith resolution, in the freight rates on apples, pears and other fresh fruits from points of origin in Oregon to destinations throughout the United States and Canada. It declares that the deciduous fruit industry in the state is suffering from a serious economic depression and that the present rates are higher than "the lowest possible lawful rates compatible with the maintenance of adequate transportation service" as well as unreasonable under section 1 of the act.

Operation of Edgewood Cut-Off Authorized

The Illinois Central, on June 19, was authorized by the Illinois Commerce Commission to do intrastate business on its recently completed Edgewood cut-off between Edgewood, Ill., and Fulton, Ky. This decision disposes of long-standing protests of certain communities in southern Illinois and northern Kentucky, on the main line of the Illinois Central, based on the claim that the cut-off would deprive them of adequate train service.

Pennsylvania Celebrates at Des Moines

The freight office of the Pennsylvania at Des Moines, Iowa, was established on July 1, 1868, and the sixtieth anniversary of the office was signalized by a dinner last Monday at the Grant Club, Des Moines, attended by city and state officals, business men and others. This was one of the first off-line freight offices established in this country. It has been served by only two agents; E. P. Douglas until June, 1905, and E. M. Wentworth from 1905 to the present time.

Boston to New York via Whitestone

The New England Steamship Company operating steamships on Long Island Sound, has leased terminal facilities from the Long Island Railroad at Whitestone, Long Island, with a view to landing westbound steamers at that point whenever, because of fog, there is likely to be serious delay in the completion of the trip from that point through Hell Gate and the East River to the regular terminus in Manhattan. Whitestone is at the north end of a short branch, whence trains are run to the Pennsylvania station, Manhattan, in 35 minutes, the distance being about 11 miles.

Great Lakes Shippers Board

The regular meeting of the Great Lakes Shippers' Regional Advisory Board was held at Hotel Statler, Buffalo, N. Y., on June 20, with an attendance of about 500. Estimates of the volume of freight to be moved in the Great Lakes region during the ensuing three months average 3.8 per cent increase as compared with 1927: but this average is made up of varied rates of increase and decrease. Among the increases of more than five per cent are hay, straw, etc., 24.2 per cent; flour, meal, etc., 7.6 per cent; fresh fruits, 45 per cent; fresh vegetables, 30 per cent; castings, machinery, etc., 8.7 per cent; automobiles and trucks 11.7 per cent; chemicals and explosives, 8.7 per cent.

The calculation for livestock is 9.8 per cent decrease; and sugar, molasses, etc., 26 per cent decrease.

Kenneth A. Moore was re-elected president of the board for the ensuing year. Frank H. Baer, Cleveland Chamber of Commerce for general secretary.

Central Western Board Meeting

Commodity committee reports covering all major crops and industrial products presented at the 15th formal and 6th annual meeting of the Central Western Shippers Advisory Board at Glenwood Springs, Colo., on June 28 indicate that the movement of all commodities, including LCL merchandise and miscellaneous commodities during the three months of July, August and September will total 510,069 cars, a decrease of 3.3 per cent as compared with loadings for the same period of 1927. Commodities showing decreases include: grain, 14.4 per cent; hay, 10.3 per cent; packing house products, 5.1 per cent; coal and coke, 3.8 per cent; ore and bullion, 4.6 per cent. The increases anticipated include: flour and other mill products, 2 per cent; fresh fruit, 6.6 per cent; potatoes, 5.4 per cent;

lumber and forest products, 4.1 per cent; crude oil and petroleum products, 2.3 per cent, and sugar, 1.7 per cent. The commodities whose shipments will be about equal to those of last year are, live stock, dairy products, iron and steel, brick and tile and canned goods.

New England Shippers' Board

The regular meeting of the New England Shippers' Advisory Board was held at Boston on June 25, with an attendance of 410. The reports of the 46 commodity committees, when summarized, predict, for the coming three months, a very slight increase in the volume of freight as compared with the same quarter of 1927. The largest increases expected are: automobiles, 20 per cent; building and monumental stone, 10 per cent; hides and leather, 20 per cent and petroleum products, 13 per cent. Decreases are predicted as follows: brick, 15 per cent; canned goods, 30 per cent; grain, 20 per cent, and hay, 20 per cent.

The by-laws were amended to provide hereafter for only two regular meetings each year, these to be in March and September. General chairman W. F. Garcelon and general secretary, Francis J. Dowd (Boston) were re-elected for the ensuing year.

Simplification of Lift Trucks and Skid Platforms Approved

A proposed simplified practice recommendation for the dimensions of lift trucks and skid platforms has been approved by a general conference of manufacturers and users under the auspices of the Division of Simplified Practice, Department of Commerce.

The conference passed resolutions that two standard dimensions, 8 inch and 12 inch, be adopted for under clearance of skid platforms; and that "the minimum clearance between runners or supports of skids be not less than 29 inches." In addition the conference went on record as favoring the establishment of standard dimensions for over-all length and width of skid platforms, with the proviso that there be two standards, one to be such that this size of skid can be placed three abreast in a freight car, and the other the same length as the first skid but twice the width.

This recommendation, subject to acceptance on the part of the interested elements of the industry, will become effective October 1, 1928. It will be reviewed annually by the standing committee. The membership of this committee is comprised of Robert A. Lesher (chairman); J. W. Gerber of the Southern Railway; R. C. Damon of the National Automobile Chamber of Commerce; C. B. Crockett of the Society for Electric Development, W. A. Meddick of the Lakewood Engineering Company; Walter C. Stuebing of The Stuebing Cowan Company and Edwards L. Leeds of Leeds & Co.

Good Service Basis of Public Favor

Good service is the principal basis on which good public relations are established, said Paul Shoup, executive vice-president of the Southern Pacific, in an address before the Pacific Railway Club at San Francisco on June 22.

The chief problem that public service corporations have faced has been to create a situation of understanding and goodwill between the public and themselves. The last few years have seen a decided change from an antagonistic attitude to one of helpful encouragement, but we have with us always the 'Jacks-the-giant-killer,' attempting to use the power of government to make trouble on false grounds. These we must meet with the uncolored truth specifically presented as to the problem at issue, and with facts and reasons that cannot be successfully assailed.

Decentralization of responsibility has helped to promote good public relationships in connection with the affairs of the large corporations, making for promptness in action and the development of men.

Each employee, no matter what his station may be, is in himself the corporation when dealing with the public. "Courtesy and quick decisions without unnecessary reference to others for conclusions make for favorable relationships. Our public relationships are largely determined on the firing line."

Southwestern Tariffs Suspended

A number of requests for suspension of certain tariffs and tariff supplements filed to become effective July 8 pursuant to the decision in the Consolidated Southwestern Cases were received by the Interstate Commerce Commission. That decision embraces the class rates, and the commodity rates on many articles between points in the Southwest, and between points in that territory and other portions of the United States. Many of the petitions were directed to the rates on commodities as to which no specific rates were prescribed in the commission's findings, but as to which the defendants were directed to file rates substantially similar to the rates actually prescribed. In most instances the rates filed by the carriers are class rates cancelling the existing commodity rates.

The commission on June 30 ordered the suspension of all tariffs and supplements, and items of tariffs or supplements, having the effect of cancelling existing carload commodity rates, and carload classification exceptions, on so-called "untreated" commodities, viz., commodities other than those on which rates were specifically prescribed. This will have the effect of holding in force, pending further disposition, the present carload commodity rates, or the present class rates subject to such classification exceptions, as the case may be. In other words the present carload charges will remain in effect as to such traffic.

The commission also suspended the new tariffs, supplements and items in so far as they have the effect of cancelling existing carload commodity rates applicable on import or export traffic.

The commission has not yet passed upon other requests for suspension which deal with other features of the tariffs as filed.

On July 3 the Commission passed upon a number of additional requests for suspension as follows:

It ordered the suspension of all such tariffs and tariff supplements in so far as they have the effect of canceling existing carload commodity rates on cull or windfall apples.

It ordered the suspension of the proposed rates on cider and vinegar, carloads, in so far as they apply from points in Kansas-Missouri territory and Southwestern territory, including Oklahoma and Texas differential territories, to Missouri River cities, Southwestern gateways, (St. Louis, Memphis, Chicago, New Orleans, etc.) and to the so-called defined territories north and east thereof.

It ordered the suspension of all the proposed rates on peaches in carloads.

It ordered the suspension of all the proposed commodity rates on citrus fruits (oranges, lemons, limes, grapefruit, etc.) in carloads, and the suspension of all tariffs and supplements in so far as they have the effect of cancelling existing carload commodity rates on these commodities.

It voted not to suspend the proposed rates on crude phosphate rock, ground or pulverized, acidulated or not acidulated, or acidulated and ammoniated.

It voted not to suspend reduced rates on newsprint paper, writing paper, tablets, toilet paper, and various other kinds of paper, in carloads, from points in the north to Dallas, Fort Worth and other points in northeast Texas.

It voted not to suspend the rates on iron and steel articles, in carloads, such as bar iron, sheet iron, plate iron, structural iron, etc., as included in commodity description 24 of Appendix 10 to the report in Consolidated Southwestern Cases, except as indicated in the following paragraph.

It ordered the suspension of all the proposed rates on steel or wrought iron pipe (welded or seamless); and on steel or wrought pipe connections, couplings and fittings.

It ordered the suspension of all tariffs and supplements applying on classes or commodities, carloads or less than carloads, between points east of the Indiana-Illinois State line except points in Indiana included in the Chicago district, and on and north of the Ohio and Potomac Rivers (points in central, trunk line and New England territories) and points in Kansas and Missouri, including the rates between Chicago and Chicago junctions and Mississippi River crossings, on the one hand, and points in Kansas and Missouri on the other in so far as they apply on traffic to or from points east of the Indiana-Illinois State line and on and north of the Ohio and Potomac Rivers.

It voted to deny a petition of the Southern and Louisville & Nashville dated June 29, 1928 in so far as it seeks the suspension of tariffs publishing rates from Southern territory to southwestern and Kansas-Missouri territories.

Equipment and Supplies

Locomotives

THE CHESAPEAKE & OHIO will build ten locomotive tenders in its own shops.

THE ILLINOIS CENTRAL is inquiring for 13 locomotive tenders.

THE CHICAGO, WEST PULLMAN & SOUTHERN has ordered one six-wheel switching locomotive from the Baldwin Locomotive Works.

THE MEXICAN RAILWAY COMPANY has ordered 2, three-cylinder, Pacific type locomotives with 20 in. by 28 in. cylinders, from the American Locomotive Company.

THE CHICAGO & ILLINOIS MIDLAND has ordered two light Mikado type locomotives from the Lima Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of June 9.

THE CLEVELAND UNION TERMINALS COMPANY has ordered 20 electric locomotives from the General Electric Company. Inquiry for this equipment was reported in the *Railway Age* of May 5.

Freight Cars

THE HERCULES CEMENT COMPANY is inquiring for one cement car.

THE MANILA RAILROAD is inquiring for six tank cars.

THE JACOB DOLD PACKING COMPANY is inquiring for ten steel underframes for refrigerator cars of 30 tons' capacity.

THE FRUIT GROWERS' EXPRESS is inquiring for 150 steel underframes for refrigerator cars.

THE CHICAGO & EASTERN ILLINOIS is inquiring for 100 single sheathed automobile cars, of 40 tons' capacity.

Passenger Cars

THE CHESAPEAKE & OHIO is inquiring for five gas-electric rail motor cars and 6 trailer cars.

THE MISSOURI-KANSAS-TEXAS has ordered 19 baggage and mail cars from the American Car & Foundry Company. Inquiry for this equipment was reported in the *Railway Age* of June 9.

Supply Trade

George J. Lynch, assistant district manager of the **Chicago Pneumatic Tool Company,** New York, has been appointed district sales manager, with headquarters at St. Louis, Mo.

John S. Latta has resigned as manager of the branch at 2132 Market street, Philadelphia, Pa. of the **Manhattan Rubber Manufacturing Company,** Passaic, N. J., and **David Newhall** has been appointed manager of the Philadelphia branch. Mr. Newhall was formerly manager of sales of freight cars and auxiliary locomotives, of the Bethlehem Steel Company, at New York.

W. G. Edmondson has resigned as assistant engineer of motive power of the Reading Company, and has been appointed works manager at the plant of the **American Abrasive Metals Company,** Irvington, New Jersey.

The Okonite Company, 501 Fifth avenue, New York, celebrated its fiftieth anniversary June 27 at the Engineers' Club, New York. A banquet was held which, in addition to celebrating the "Golden Jubilee," was in the nature of a testimonial to H. Durant Cheever, president of the organization, who has been with the Okonite Company for 40 years.

F. L. Stone, assistant general sales manager of the **Universal Portland Cement Company** has been promoted to general sales manager to succeed **Blaine S. Smith,** who has resigned to become president of the Pennsylvania Dixie Cement Corporation. Mr. Stone has been in the employ of the Universal Portland Cement Company for 18 years, having started as a salesman and later becoming successively chief clerk, assistant general sales agent and division sales manager. For the last 10 years he has been assistant general sales manager. He was born at Camden, Ark., and was educated at the University of the South, Sewanee, Tenn., and at the United States Naval Academy, Annapolis, Md. Previous to his connection with the Universal Portland Cement Company he engaged in newspaper work in Denver, Colo., and in life insurance at Charlotte, N. C.

American Car & Foundry Company

The American Car & Foundry Company, for its twenty-ninth fiscal year, ended April 30, 1928, reports net earnings of $3,754,555—a total of $1,945,445 less than the sum required to pay the regular 6 per cent dividends on the no-par-value common shares, after the regular 7 per cent had been paid on the preferred. The additional sum necessary to pay these dividends was appropriated from the reserve maintained for that purpose.

Extracts from the remarks of President Woodin follow:

The failure of the Company to earn the full amount of its dividend requirements is due to conditions which have impartially affected all concerns engaged in the same general line of industry. Not for several years has the buying of equipment by the railroads been in such small volume as it was during the year just closed. Of such buying as there has been, your Company has had its full share—but this, naturally, has been on a keenly competitive basis and at prices affording even less than usual of profit.

The Company's financial condition is sound and healthy and its affairs are in an entirely liquid position. Inventories are in an amount consistent with the volume of business on the books at the close of the year, the cash is adequate for all immediate necessities, and the Company's investments in governmental and other securities combined with the results of its business in the manufacture and sale of miscellaneous articles, produce a return which in part compensates for the absence of profit caused by the lessening in the volume of business done—that condition being, as above noted, due to the lack of equipment buying by the railroads.

In the report covering operations for the preceding year, reference was made to the fact that the Company was attempting the developing of "a field for its activities and the utilization of its experience and facilities more varied than that offered by the building of freight and passenger cars of the ordinary type, but nevertheless lying within the general domain of transportation, and therefore calling for no departure from the underlying purposes of the Company's organization,"—such field being the manufacture and sale of motor-buses, motor-trucks and motor-driven rail cars. During the year just closed the Company has diligently continued, and with some measure of success, its development of that field of activity. The great and growing importance, in the general scheme of transportation, of automotive vehicles of the kind indicated, fully warrants a continuance of the Company's activities in this line of endeavor.

It is with great and sincere sorrow that the Management reports the death, on November 16, 1927, of Mr. Frederick F. Fitzpatrick, a member of this Company's Board of Directors and also at the time of his death President of American Locomotive Company.

There has been no lessening during the year of the loyalty and efficient co-operation in the handling of the Company's business, given by the members of the Company's organization—and for such the Management expresses to them its thanks and appreciation.

It is difficult, if indeed it would not be idle, to attempt a forecast as to what will be the result of operations for the year now current. At this writing there is no immediate prospect of a resumption of buying activity on any extensive scale. Also, this being a "presidential year," inevitably there will be for the next few months the uncertainty always attendant upon a possible change in governmental administration. There remains, however, the indisputable fact that equipment in active and continued use must sooner or later require replacement, and the railroads cannot indefinitely refrain from procuring equipment which, both in kind and volume, is necessary to enable them adequately to discharge their functions as carriers of the products of the industries of the country.

Statement of Consolidated Net Earnings

Earnings from all sources for the twenty-ninth fiscal year ended April 30, 1928—before deducting Repairs, Renewals, etc., as noted hereunder—and after making provision for Federal Taxes ($289,000)	$ 6,590,956.10
Less: Renewals, Replacements, Repairs, New Patterns, Flasks, etc.	2,836,401.05
Net Earnings	$ 3,754,555.05

Statement of Consolidated Surplus

Consolidated Surplus, April 30, 1927		$40,138,673.57
Add: Net Earnings for the year		3,754,555.05
		$43,893,228.62
Less: DIVIDENDS		
On Preferred Capital Stock, 7%	$2,100,000.00	
On Common Capital Stock,	3,600,000.00	
	5,700,000.00	
Less: Common Stock Dividends paid from Reserve applicable for that purpose.	1,945,444.95	3,754,555.05
Consolidated Surplus, April 30, 1928		$40,138,673.57

Construction

BANGOR & AROOSTOOK.—This road has awarded a contract to the Roberts & Schaefer Company, Chicago, for the construction of an automatic electric coaling station at Northern Maine Junction, Maine. The plant will be built in connection with Drag Scraper equipment which will have storage capacity of 10,000 tons.

CHICAGO, BURLINGTON & QUINCY.—A contract for the construction of a 500,000-bu. capacity grain elevator at Council Bluffs, Iowa, has been let to the Burrell Engineering and Construction Company, Chicago, at a cost of about $75,000.

CHICAGO, ROCK ISLAND & PACIFIC.—This company plans the expenditure of $637,000 during the present year for the protection of its line from interruption to traffic by flood waters. On the Illinois division about $70,000 will be expended at one point to raise the grade 3 ft. in order to obtain additional waterway under a bridge. On the Iowa division $143,270 will be spent to raise the track above flood level at Carnforth, Iowa, Malcom and Tiffin. Track will be raised above the high water mark of the 1927 flood for a distance of 6,000 ft., between Brasfield, Ark., and Biscoe, for a distance of 5,100 ft., between Biscoe, Ark., and De Valls Bluff, and at Kenney, La., at a cost of about $145,700. On the Pan-Handle division rip rap will be placed along the banks of the South Canadian and Red rivers and Deer creek and the track will be raised for short distances at Bridgeport, Tex., and in the vicinity of Deer and Sugar creeks and the Ouachita river at a cost of about $121,000. The raising of track at Winthrop, Mo., McLoud, Okla., and Stuttgart, Kan., the construction of retarders for the prevention of bank erosion at Rushville, Mo., and Tavern Rock and the dredging of a new channel for a stream at Jennings, Kan., will require the expenditure of about $155,000.

INDIANA HARBOR BELT.—A contract for the construction of a large capacity electric cinder plant at Blue Island, Ill., has been awarded to the Roberts and Schaefer Company, Chicago.

NEW YORK CENTRAL.—Several contracts have recently been awarded by this road. One for the installation of a rotary converter and transformer in substation 1-A, 43rd street, New York City, went to the General Electric Company; a second was awarded to the Edward Joy Company, Syracuse, New York, for steam and water piping for the Central Terminal building at Buffalo; a third involving the placing of an embankment between pier "K" and Baldwin avenue, Weehawken, New Jersey, was awarded to O'Brien Brothers, New York, while a fourth for the construction of additional stock yards at West 41st street went to H. H. Sherwin & Company, New York.

PENNSYLVANIA.—This road has awarded a contract to W. F. Trumble & Sons Co., Pittsburgh, Pa., for the construction of a freight station, shelter sheds and enclosed waiting rooms together with subways, stairways and platforms at Sewickley, Pa. This project is estimated to cost approximately $230,000. A contract was also awarded to Herman W. Tapp, Fort Wayne, Ind., for the construction of a concrete subway in connection with the elimination of a grade crossing at Anthony boulevard, Fort Wayne. This is expected to cost about $75,000.

TEXAS & PACIFIC.—This company will bear 50 per cent of the cost of the construction of a viaduct over its tracks at Cregg street, Big Spring, Tex. The balance of the total cost of $130,000 will be divided between the city and the county.

UNION PACIFIC.—Bids will be closed on July 9 by this road for the erection of an addition to its general headquarters building at Omaha, Neb. This project was announced in the *Railway Age* of May 12.

WABASH.—A contract for the construction of a one-story brick and concrete passenger and freight station at Huntington, Ind., has been let to the Walsh Construction Company, Chicago. Bids closed on July 5 for the construction of a fruit auction and storage building which it is planned to construct at St. Louis, Mo., at a cost of about $850,000.

Railway Finance

CAROLINA SOUTHERN.—*Stock.*—The Interstate Commerce Commission has authorized this company to issue $25,000 of preferred and $25,000 of common stock to be sold at par to meet existing obligations, reimburse the treasury for capital expenditures and provide funds for proposed expenditures.

CHICAGO, ROCK ISLAND & GULF.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority for the construction and operation of the line from Amarillo, Tex., to the Texas-Oklahoma state line, part of the line from Amarillo to Liberal, Kan., authorized by a certificate issued by the commission to the Chicago, Rock Island & Pacific. The Rock Island assigned to the Gulf company its rights in the certificate in so far as they relate to the Texas part of the line. According to the application that portion of the line from Amarillo to Stinnett, 57.7 miles, has been substantially completed, and work is under way between Stinnett and Gruver, 33.79 miles.

FEDERAL VALLEY.—*Notes.*—The Interstate Commerce Commission has authorized this company to issue $27,003 of 3-year 6 per cent promissory notes to meet maturing obligations of equal amount.

GEORGIA & FLORIDA.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $807,500 of first-mortgage 6 per cent bonds, series B, to reimburse its treasury for capital expenditures and to finance the additional cost of constructing the extension of its line from Augusta, Ga., to Greenwood, S. C., these bonds to be pledged and repledged as collateral security for short-term notes.

KANSAS, OKLAHOMA & GULF.—*Lease.*—The Interstate Commerce Commission has authorized this company to lease the Kansas, Oklahoma & Gulf of Texas, which it now controls by ownership of all its securities.

GREAT NORTHERN PACIFIC.—*Wisconsin Commission opposes merger.*—The Railroad Commission of Wisconsin has filed with the Interstate Commerce Commission a brief urging it to deny the application of the Great Northern Pacific for authority to acquire control of the Great Northern, Northern Pacific and Spokane, Portland & Seattle, taking the position that the proposed merger is not consistent with the public interest. The commission contends that the principal effect of the savings resulting from the proposed merger would be to increase the earnings of the stockholders of the applicant companies, and that such operating savings would have no appreciable influence toward a downward movement of the rate structure in the territory affected. On the contrary, it says, "it would tend in the opposite direction by reason of the unfavorable effect upon the operations of the Chicago, Milwaukee, St. Paul & Pacific. The latter company has just emerged from receivership and is in no position to withstand the competition of the merged lines which would have tremendous traffic and financial advantages over it."

LIVE OAK, PERRY & GULF.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon parts of its line, including 8.75 miles near Stanlon, Fla., and from Mayo to Alton, Fla., about 2 miles.

MINNEAPOLIS & ST. LOUIS.—*Bondholders' Committee.*—A committee comprised of William P. Hawley, Mark W. Potter and William J. Wollman has been appointed by holders of Minneapolis & St. Louis refunding and extension mortgage 5 per cent 50-year bonds, due 1962, to deal with committees representing other issues of the company, in order that the 50-year bonds may be properly represented in any consideration of reorganization of the road. The committee has requested holders of the issue to forward their bonds immediately to the depositary, Guaranty Trust Co., of New York. They must be deposited before August 1 and should be accompanied by coupons of August 1, 1923 and all subsequent coupons.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—*Equipment Trust.*—The Inter-

state Commerce Commission has authorized this company to assume obligation and liability for $1,260,000 equipment trust certificates, series O, to be issued at 97.21 and accrued dividends by the Illinois Merchants Trust Company.

NEW YORK, CHICAGO & ST. LOUIS.—*Stock.*—The Interstate Commerce Commission has authorized this company to use the proceeds of $3,378,500 of common stock to reimburse its treasury for capital expenditures already made.

PENNSYLVANIA.—*Stock*—Stockholders of the company, at a special meeting held June 29, approved the plan to issue $17,500,000 par value of new capital stock for sale direct to officers and employees. The new stock will be offered at the par value of $50 per share to officers and employees who have had an aggregate service of six months or more. Subscriptions will close August 31, 1928, and may be for any amount from one to ten shares. In the event of over-subscription, the larger amounts will be reduced to bring the aggregate within the total authorized. Payments can be made in only one way, namely, by deductions from the monthly payroll and may be at the rate of either $2 or $5 per month per share. No stock will be sold under any other conditions. Therefore, the minimum period in which it can be paid for in full is ten months and the maximum period two years and one month.

SEABOARD AIR LINE.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a branch line in Colleton county, S. C.

SEABOARD AIR LINE.—*Charlotte Harbor & Northern Lease.*—The Interstate Commerce Commission in a supplemental order has authorized the amendment of the lease of the latter company by the former to provide for rental payment of 6 per cent on valuation only in the event of default in the first and consolidate mortgage, under which the Charlotte Harbor & Northern stock is pledged.

Dividends Declared

Atchison, Topeka & Santa Fe.—Common, $2.50, quarterly, payable September 1 to holders of record, July 27.

Baltimore & Ohio.—Common, $1.50, quarterly; preferred, $1, quarterly, both payable September 1 to holders of record July 14.

Carolina, Clinchfield & Ohio.—1 per cent, quarterly; stamped stock, 1¼ per cent, quarterly, both payable July 10 to holders of record June 30.

Delaware & Hudson.—$2.25, quarterly, payable September 20 to holders of record August 28.

Northern Railroad of New Hampshire.—1½ per cent, quarterly, payable July 2 to holders of record June 11.

Norfolk & Western.—Common, $2., quarterly, payable September 19, to holders of record August 31.

Norfolk & Western.—Adjustment preferred, $1., quarterly, payable August 18 to holders of record July 31.

Pennsylvania.—$0.87½, quarterly, payable August 31 to holders of record August 1.

Providence & Worcester.—2½ per cent, quarterly, payable June 30 to holders of record June 13.

Average Prices of Stocks and of Bonds

	July 3	Last week	Last year
Average price of 20 representative railway stocks.	118.69	117.63	114.10
Average price of 20 representative railway bonds...	94.29	93.91	93.81

Officers

Executive

W. E. Coman, assistant to the president of the Northern Pacific, with headquarters at Seattle, Wash., representing the executive department of that railroad on the Pacific coast, has been elected vice-president, with headquarters at the same point. A sketch covering Mr. Coman's railway career and a reproduction of his photograph appeared in the *Railway Age* of January 14, page 169, at the time of his promotion to assistant to the president.

William Chase Hull, who has been appointed assistant vice-president of the Chesapeake & Ohio and the Hocking Valley, with headquarters at Richmond, Va., was born on September 8, 1880, at Bond Hill, O. He entered railway service in March, 1895, with the Baltimore & Ohio Southwestern, (now a part of the Baltimore & Ohio) at Cincinnati. From August, 1897, to February, 1918, he served consecutively as secretary to the assistant freight traffic manager, chief clerk to the vice-president and assistant to the vice-president

William Chase Hull

in charge of traffic on the Chesapeake & Ohio and the Hocking Valley. From the latter date until March, 1920, he served as assistant to the manager, inland fuel traffic, for the United States Railroad Administration at Washington, D. C. At the end of that time he again served the Chesapeake & Ohio and the Hocking Valley as assistant to the vice-president in charge of traffic, remaining in that capacity until June 19, 1928, when he was appointed assistant vice-president in charge of traffic for the same roads.

James E. Weller, who has been appointed assistant vice-president in charge of traffic on the Pennsylvania, with headquarters at Chicago, was born on September 30, 1868, at North Liberty, Pa. He entered railway service in September, 1887, in the traffic department of the Lake Shore & Michigan Southern, now a part of the New York Central. In November, 1891, he was appointed traveling freight agent on the Pennsylvania and he held that position until January, 1897, when he was promoted to commercial agent. In March, 1906, Mr. Weller was promoted to district freight solicitor and two years later he was promoted to division freight agent. He was promoted to general western freight agent, with headquarters at Chicago, in June, 1910, and continued in that capacity until August, 1918, when he was appointed chief of the Inland Traffic Service of the United States War Department at Pittsburgh, Pa. In January, 1919, Mr. Weller was promoted to regional traffic assistant in the North-

James E. Weller

western region of the United States Railroad Administration at Chicago. Upon the termination of federal control in March, 1920, he was appointed freight traffic manager of the Northwestern region of the Pennsylvania, where he served until June, 1925, when he was promoted to assistant traffic manager of the Western region. He continued in that capacity until November, 1925, at which time he was appointed traffic manager of the Western region, which position he held until his recent appointment to the newly created position of assistant vice-president in charge of traffic.

E. T. Whiter, who has been appointed vice-president of the Pennsylvania at Pittsburgh, Pa., was born at Steubenville, O., in 1864. He entered the employ of the Pennsylvania as telegraph operator in 1881 and later served as train dispatcher, assistant trainmaster and trainmaster of various divisions. He became superintendent of the Eastern division of the Pennsylvania in 1903 and in 1913 he was appointed general superintendent of the Northwest system. Two years later he became assistant general manager of the Lines West and in March, 1920, he was appointed assistant to the vice-president in charge of personnel, with headquarters at Philadelphia. In April, 1923, Mr. Whiter was promoted to vice-president in charge of the Northwestern region,

where he served for a period of nearly three years. In October, 1925, he became regional vice-president at Pittsburgh with jurisdiction over the Central region, and he served in that capacity until his recent appointment to the newly created position of vice-president at Pittsburgh.

E. T. Whiter

E. W. Smith, who has been appointed regional vice-president of the Pennsylvania at Pittsburgh, Pa., was born in Clarksburg, W. Va., on September 21, 1885. He was graduated from the Virginia Polytechnic Institute, in 1905 and entered the service of the Pennsylvania in June of that year. After serving in various positions in the motive power department, Mr. Smith was appointed assistant master mechanic, with headquarters at Wilmington, Del., in October, 1913. On April 19, 1915, he was transferred in the same capacity to Altoona, Pa., where he served until July, 1916, when he became assistant engineer of motive power. He was transferred to Harrisburg, Pa., on October 10, 1917 as master mechanic, in which capacity he served until May 26, 1918, when he was transferred to Williamsport, as superintendent of motive power. In December, 1919, he returned to Altoona as superintendent of motive power and on March 1, 1920, he was promoted to engineer of transportation on the staff of the vice-president in charge of operation, at Philadelphia. He was appointed general superintendent of motive power at St. Louis, Mo., on October 15, 1922, and two years later he was promoted to general superintendent of the Western Pennsylvania division, in which position he served until September, 1926, when he was appointed general manager of the Eastern region, holding this position until his recent appointment as regional vice-president at Pittsburgh.

Financial, Legal and Accounting

W. W. Mayer, general real estate agent on the Pennsylvania, with headquarters at Philadelphia, Pa., has been appointed general real estate agent on the Long Island, with the same headquarters.

Grant, Ellis, Shafroth and Toll have been appointed solicitors for Colorado for the Atchison, Topeka & Santa Fe, with headquarters at Denver, Colo., succeeding **Earl H. Ellis,** who acted in that capacity individually.

J. W. Schleifhauf has been appointed general claims agent of the Canadian Pacific, with headquarters at Winnipeg, Man., succeeding **William H. D'Arcy,** who retired from active service on July 1 under the company's retirement plan. Mr. D'Arcy was born on June 23, 1859, at Manor Hamilton, County Letrim, Ireland. He entered railway service at the age of 14 years as an express clerk on the Great Northern Railway of Ireland. For the next three years he served successively in that position, as freight and ticket clerk and as agent's assistant. In May, 1876, he was advanced to correspondence clerk in the general offices and for the following six years he was successively correspondence clerk, rate clerk, chief claims clerk and secretary to the general manager. Mr. D'Arcy came to Canada in May, 1882, and was appointed secretary to the general auditor of the Grand Trunk, where he remained until August of the same year when he became claim agent on the Canadian Pacific. He was promoted to general claim agent, with headquarters at Winnipeg, in January, 1905.

John E. Westlake, right-of-way agent and assistant real estate agent of the Minneapolis, St. Paul & Sault Ste. Marie and assistant real estate agent of the Duluth, South Shore & Atlantic and the Mineral Range, with headquarters at Minneapolis, Minn., has been promoted to real estate agent of the three railroads, with headquarters at the same point, succeeding **William H. Schutt,** who retired from active duty on July 1 after 36 years in the service of the Soo line. Mr. Westlake will continue to have jurisdiction over the right of way department. Mr. Schutt was born at Davenport, Iowa, on November 15, 1865, and entered railway service in 1892 with the Soo line. He was promoted to assistant to the general manager, with headquarters at Minneapolis, in 1907 and in 1911 he was appointed superintendent in charge of mail service. In the following year Mr. Schutt's jurisdiction was extended to include the employment department and rents department and his title was changed to superintendent of employment, rents and mail. During federal control, in 1919, he was appointed assistant secretary, assistant treasurer and real estate agent, assuming the duties of real estate agent of the Soo line, the Duluth South Shore & Atlantic and the Mineral Range in 1920.

Operating

R. K. Rochester, who has been appointed general manager of the Eastern region of the Pennsylvania, with headquarters at Philadelphia, Pa., was born in Ontario, Canada, in 1877. He was graduated from Rose Polytechnic Institute and entered the service of the Pennsylvania in 1901 and has since held many positions on different divisions of that road. He was appointed general manager of the Long Island in November, 1927, and served in that capacity until his recent appointment as general manager of the Eastern region. A detailed sketch of Mr. Rochester's railway career, together with a reprint of his photograph, appeared in the *Railway Age* of June, 1927, in connection with his appointment at that time as assistant general manager of the Eastern region of the Pennsylvania.

E. D. Cotterell, superintendent of transportation of the Western lines of the Canadian Pacific, with headquarters at Winnipeg, Man., has been promoted to general superintendent of the Manitoba district, with headquarters at the same point, succeeding **A. E. Stevens,** who retired from active service on July 1 under the company's retirement plan. **J. G. Sutherland,** superintendent of the Calgary division, with headquarters at Calgary, Alta., has been promoted to superintendent of transportation of the Western lines to succeed Mr. Cotterell. **Andrew Halkett,** general superintendent of the Algoma district, with headquarters at North Bay, Ont., has been transferred to the Alberta district, with headquarters at Calgary. **J. L. Jamieson,** superintendent of the Brandon division, with headquarters at Brandon, Man., has been transferred to the Calgary division to succeed Mr. Sutherland and Mr. Jamieson has been replaced in turn by **W. S. Hall,** superintendent of the Portage division, with headquarters at Winnipeg. **J. A. McGregor** has been appointed superintendent of the Portage division to succeed Mr. Hall who has been transferred.

W. B. Kirkland, assistant superintendent of the Rio Grande division of the Southern Pacific, with headquarters at El Paso, Tex., has been promoted to superintendent of the New Mexico division, with headquarters at the same point, succeeding **C. M. Murphy,** who has been transferred to the San Joaquin division, with headquarters at Bakersfield, Cal. At his own request **G. E. Gaylord,** superintendent of the Los Angeles division, with headquarters at Los Angeles, Cal., has been transferred to the Stockton division, with headquarters at Stockton, Cal., replacing **William Wilson,** who has been transferred, also at his own request, to the Tucson division, with headquarters at Tucson, Ariz. Mr. Wilson replaces **H. S. Fairbank,** who has been transferred to the Rio Grande division, with headquarters at El Paso, to succeed **L. U. Morris,** who has been transferred to the Los Angeles division to replace Mr. Gaylord. **J. P. Nash** has been appointed assistant superintendent of the Rio Grande division to succeed Mr. Kirkland who has been promoted.

Traffic

T. S. Evans has been appointed industrial agent for the Seaboard Air Line, with headquarters at Jacksonville, Fla.

M. L. Mowry, district passenger agent for the Chicago, Rock Island & Pacific at Denver, Colo., has been promoted to general agent in the passenger department at the same point.

C. T. Mackenson, Jr., assistant general traffic manager on the Pennsylvania, with headquarters at Philadelphia, Pa., has been appointed assistant general traffic manager on the Long Island, with the same headquarters.

M. O. Culton has been appointed general agent on the Chicago Great Western, with headquarters at Tulsa, Okla., succeeding R. C. Jamison, transferred.

Harry C. Oliver, who has been appointed traffic manager of the Central region of the Pennsylvania, with headquarters at Pittsburgh, Pa., was born on September 10, 1886, at Shreve, O., and entered the service of the Pennsylvania at Canton, O., on May 1, 1902. He received his appointment as freight traffic manager of the Pennsylvania in October, 1927, and served in that capacity until his recent promotion to traffic manager of the Central region. A detailed sketch of Mr. Oliver's railway career, together with a reprint of a photograph, appeared in the *Railway Age* of October 29, 1927.

S. T. Stackpole, who has been promoted to traffic manager of the Western region of the Pennsylvania, with headquarters at Chicago, has been in the service of that railroad for 21 years. He was born at Hamilton, N. Y., in 1885 and is a graduate of Harvard University. He entered railway service in 1907 on the Pennsylvania. After advancing through a number of minor positions Mr. Stackpole was promoted to division freight agent at Detroit, Mich., in 1922. In 1925 he was promoted to assistant general freight agent, with headquarters at the same point, becoming general agent at Detroit in 1927. Mr. Stackpole's promotion became effective on June 27.

S. T. Stackpole

Charles C. Cameron, who has been promoted to freight traffic manager of the Illinois Central, with headquarters at Chicago, was born in St. Louis, Mo. He entered railway service as a messenger boy in the freight department of the Wabash in St. Louis and in May, 1892, entered the service of the Illinois Central as a clerk in the general freight office in the same city. Five years later he was advanced to chief clerk in the general freight office in St. Louis and in 1899 he was promoted to assistant general freight agent at Louisville, Ky. In 1903 Mr. Cameron was again promoted to general freight agent, with headquarters at Louisville, being transferred to Memphis, Tenn., in 1905 and to Chicago in 1907. From 1909 to 1914 he served as coal traffic manager, with headquarters at Chicago, and from 1914 to 1925 he again acted as general freight agent at Chicago. Mr. Cameron was then promoted to assistant freight traffic manager and his promotion to freight traffic manager became effective on July 1.

Charles C. Cameron

H. H. Brown, assistant freight traffic manager, of the Great Northern, with headquarters at St. Paul has been promoted to general traffic manager with headquarters at the same point. **P. H. Burnham,** general freight agent, with headquarters at St. Paul, has been promoted to freight traffic manager with headquarters at the same point. Mr. Brown and Mr. Burnham succeeded **G. H. Smitton** who resigned on July 1 because of ill health. Mr. Smitton held the position of freight traffic manager. **P. B. Beidelman,** assistant general freight agent with headquarters at St. Paul, has been promoted to general freight agent to succeed Mr. Burnham. **C. H. Trembly** has been appointed assistant to the vice president and director of traffic with headquarters at St. Paul. **H. Carl,** general agent at Duluth, Minn., and **W. D. O'Brien,** general agent of the freight department at St. Paul, have been promoted to assistant general freight agents with headquarters at St. Paul. **G. A. Blanchard** has been appointed general agent to succeed Mr. O'Brien.

John C. Kimes, who has been promoted to general freight agent of the Baltimore & Ohio, with headquarters at Chicago, was born at Monongahela City, Pa. He attended public school at Braddock, Pa., and at the age of 16 years entered the service of the Baltimore & Ohio as a messenger at Rankin, Pa. Mr. Kimes was successively promoted to yard clerk, bill clerk, rate clerk, cashier and agent on the B. & O. and in 1906 he entered the traffic department as soliciting freight agent at Pittsburgh, Pa., where he remained until April, 1910, when he was promoted to commercial freight agent. He was advanced to division freight agent in October, 1916, and early in 1918 he was granted a leave of absence to serve in the ordnance department of the United States Army. On March 1, 1919, Mr. Kimes returned to railroad service as division freight agent at Cincinnati, Ohio, being promoted to assistant general freight agent, with headquarters at Cleveland, Ohio, on March 1, 1920. His promotion to general freight agent at Chicago became effective on June 1.

John C. Kimes

Engineering, Maintenance of Way and Signaling

W. G. Edmondson, assistant engineer on the Reading at Reading, Pa., has resigned from the service of that road to accept a position as works manager for the American Abrasive Metals Company.

J. H. Wesley, chemist on the Missouri Pacific, with headquarters at Kansas City, Kan., has been promoted to engineer of water service, with headquarters at St. Louis, Mo. Mr. Wesley succeeds **H. H. Richardson,** who resigned on July 1 to become a representative of the Aluminate Sales Corporation at Chicago.

F. E. MacArthur has been appointed

acting superintendent of telegraph in charge of maintenance of telegraph, telephone and electric light wires on the Central Vermont. The maintenance of all signals is assigned to the chief engineer and the superintendent of telegraph will report to and receive instructions from the chief engineer on signal matters.

Mechanical

H. B. Bowen, works manager of the Weston shops of the Canadian Pacific at Winnipeg, Man., has been promoted to assistant superintendent of motive power of the Western lines, with headquarters in the same city. **J. Lee,** chief draftsman of the motive power department at Winnipeg, has been promoted to works manager of the Weston shops, succeeding Mr. Bowen. **A. Lupton,** general locomotive foreman at Winnipeg, has been promoted to assistant works manager of the Weston shops.

Special

E. Ward Jones, secretary-manager of the Alberta Stock Yards Company, Ltd., Calgary, Alta., has been appointed superintendent of the agricultural and animal industry branch of the department of natural resources of the Canadian Pacific, with headquarters in the same city, succeeding **George H. Hutton,** deceased.

Colonel Charles A. Lindbergh has been appointed Consulting Aeronautical Engineer to the Pennsylvania and will serve in an advisory and consulting capacity in connection with the development of that road's part in the coast to coast air-rail passenger service to be operated by the Transcontinental Air Transport Company, Inc., of whose technical committee Colonel Lindbergh is chairman. He will be a member of the staff of D. M. Sheaffer, chief of passenger transportation of the Pennsylvania and director of the Transcontinental Air Transport Company, Inc.

Purchases and Stores

C. E. Walsh, purchasing agent on the Pennsylvania at Philadelphia, Pa., has been appointed purchasing agent on the Long Island, with the same headquarters. **B. P. Phillippe,** fuel purchasing agent on the Pennsylvania has been appointed fuel purchasing agent on the Long Island, with headquarters as before at Philadelphia. **George Kefer,** purchasing agent on the Long Island at New York, has been appointed assistant purchasing agent, with the same headquarters. **C. B. Hall,** stores manager on the Pennsylvania at Philadelphia, has been appointed to the same position on the Long Island, with headquarters at the same point.

George W. Conway, who has retired as general storekeeper of the Louisville & Nashville, with headquarters at Louisville, Ky., had been in the service of that railroad for nearly 47 years. He was born on March 10, 1858, and entered the service of the Louisville & Nashville on August 2, 1881, in a clerical capacity. After advancing through various positions on the L. & N. during the next 23 years Mr. Conway was promoted to assistant general storekeeper, with headquarters at Louisville, in 1904. He was promoted to general storekeeper on January 1, 1916.

Edwin Meyer, who has been promoted to general storekeeper of the Louisville & Nashville, with headquarters at South Louisville, Ky., was born in Louisville on December 3, 1885. He entered the

Edwin Meyer

service of the Louisville & Nashville at the age of 17 years as a stenographer in the stores department at Louisville. During the time he was stenographer with the Louisville & Nashville he completed a course in the Jefferson School of Law in Louisville. In September, 1914, Mr. Meyer was promoted to chief clerk, a position he held until January, 1916, when he was appointed assistant general storekeeper. His promotion to general storekeeper became effective on May 1.

Emery M. Atkins, who has been promoted to assistant general storekeeper of the Louisville & Nashville, with headquarters at South Louisville, Ky., has been associated with that railroad for more than 21 years. He was born on July 3, 1867, in Lafayette township, Floyd county, Ind., attending Hartsville College, Hartsville, Ind., in 1884 and 1885 and graduating from New Albany Business College in 1885. From 1886 to 1889 Mr. Atkins served as deputy county treasurer of Floyd county and for the four following years he served as deputy county auditor of the same county. On October 7, 1896, he entered the service of the Louisville Railway, a street railway company in Louisville, Ky., where he remained until January, 1907, when he became a clerk on the Louisville & Nashville. In September, 1914, he was advanced to assistant chief clerk of the stores department at Louisville and in January, 1916, he was further advanced to chief clerk of the

Emery M. Atkins

stores department, the position he occupied at the time of his recent promotion.

Obituary

J. H. Jackson, inspector of transportation of the Missouri Pacific, with headquarters at St. Louis, Mo., died in that city on June 27.

Abner Taylor Young, vice-president, treasurer, general manager, and chief engineer of the San Luis Central, with headquarters at Denver, Colo., died at St. Luke's hospital in that city on June 28.

George S. Baxter, formerly treasurer of the Northern Pacific, died in New York on July 2, after an illness of several weeks. Mr. Baxter was 82 years of age, and since his graduation from Columbia University's School of Engineering in 1868 had been engaged in engineering work on mines and railroads until 1918, when he retired. He entered the service of the Northern Pacific in 1879 as a cashier and served with that road for sixteen years, rising to the position of treasurer.

* * *

Crossing of the B. & O. Over the P. R. R. at West Philadelphia, Pa.